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WHAT IS THE IMPACT OF THE ACCESS TO EXTERNAL FINANCE ON THE CAPITAL STRUCTURE OF SMEs IN EUROPE?

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Dissertation written under the supervision of
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[152114341]

Abstract

Previous literature has focused on firms' characteristics to explain changes in capital structure choices. Nevertheless, external capital availability is also an important factor when determining the amount of leverage. Exploring this idea, and using the Survey on Access to Finance of Small and Medium Enterprises (SAFE) as our database, this dissertation examines how the access to external finance impacts changes in the capital structure of SMEs in Europe. The empirical results using a probit model suggest that (i) improvements in firms' own capital and credit history lead to decreases and increases in leverage levels, respectively, when considering demand conditions. When focusing on supply factors (ii) increases in fees and commissions lead to decreases in leverage, while increases in loan size and loan maturity increase firms' leverage. Financial constraints have also been analyzed. Considering the failure in external finance applications as a constraint, (i) improvements in own capital have a significant negative impact on unconstrained firms' leverage, while (ii) increases in loan size and loan maturity has a major positive impact on constrained firms' leverage.

Professor Diana Bonfim

Supervisor

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Resumo

A literatura já existente tem-se focado nas características das empresas para explicar as mudanças na escolha da estrutura de capital. Contudo, a disponibilidade do financiamento externo é também um fator importante ao determinar o montante de dívida que a empresa vai contrair. Tendo com consideração este facto, e utilizando o questionário relativo ao acesso ao financiamento de Pequenas e Médias Empresas (SAFE) como base de dados, esta dissertação analisa como o acesso ao financiamento externo influencia as alterações na estrutura de capital das Pequenas e Médias Empresas na Europa. Os resultados empíricos, utilizando um modelo probit indicam que, ao considerar as condições de procura, (i) melhorias no capital próprio e no historial de crédito das empresas levam a diminuições e aumentos no nível da divida, respetivamente. Ao analisar os fatores de oferta, (ii) aumentos das taxas e comissões levam a diminuições no nível da dívida, enquanto aumentos na dimensão e maturidade do empréstimo aumentam o nível de dívida. Restrições financeiras foram igualmente analisadas. Tendo em consideração o insucesso na candidatura ao financiamento externo como uma restrição, (i) melhorias no capital próprio têm um impacto negativo na dívida das empresas sem restrições financeiras, enquanto (ii) aumentos na dimensão e aumento dos empréstimos têm um impacto positivo superior no nível de dívida das empresas restringidas financeiramente.

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Orientadora

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1. Introduction

The aim of this dissertation is to give continuity to the empirical research that has been developed regarding the firms' capital structure, exploring one of the main factors behind it, i.e. the access to external finance. Using firm level data from the Survey on Access to Finance of Enterprises (SAFE), which explores how SMEs access external finance in Europe, the main goal of this dissertation is to answer the following problem statement: what is the impact of the access to external finance on the capital structure of SMEs in Europe? SAFE inquiries SMEs regarding the demand and supply factors that affect their access to external finance. Hence, the main research question is then split in two main components: (i) what is the impact of the demand conditions underlying the access to external finance; and (ii) what is the impact of supply conditions imposed to access to external financing, on the capital structure of SMEs. Additionally, SMEs' financial constraints in access to external finance are taken into consideration, when testing their impact on capital structures.

Firstly, the main concepts explored in this dissertation are defined. Having it clarified, the hypotheses underlying the research question are presented as well as the main contribution of this dissertation.

1.1. Capital Structure defined

Capital structure represents the firms' choices regarding their capital composition, where firms should balance their debt and equity financing. Even though Modigliani and Miller (1958) have defended the irrelevance of this structure, the market frictions led to consider the benefits and costs of debt when deciding firms' financing sources. There are several capital structure theories that try to explain how firms execute their financing decisions. Known authors such as Shyam and Myers (1999), Frank and Goyal (2003), and Fama and French (2002) have studied firms' characteristics to examine them, namely the trade-off and the pecking order theory. Nevertheless, as stated by Myers (2003), there are different factors for different firms under different conditions that limit the applicability of one unique theory.

1.2. Access to external finance defined

External finance, as it indicates, comprises financing sources found outside the firms' business. Mainly, they are considered through (i) banks, (ii) creditors (e.g. trade credit, factoring or leasing) and (iii) securities. Its access depends usually on (i) demand conditions faced by firms

and (ii) supply side terms. Recent authors have studied how imperfections arising from the capital markets (Titman, 2002), costliness of the information (Faulkender and Peternsen, 2005) or availability of loanable funds (Leary, 2005) influence leverage levels. Hence, complementing the demand characteristics influencing the access to finance, supply-side factors impact on firms' leverage have also been object of empirical studies.

1.3. Hypothesis development

Recent literature has defended that not only firms' characteristics impact their capital structure but also the access to external financing. Deviating from the well-known capital structure theories deeply explored in the literature, several studies have separated the supply and demand drivers of credit usage, focusing on the bank and firm roles regarding the credit provision. Namely, Faulkender and Petersen (2005) divides the access to external finance in both (i) supply and (ii) demand side.

Hence, to address the main problem statement of this dissertation, i.e. the impact of the access to external finance on the capital structure of SMEs in Europe, three main hypotheses are presented as below.

Hypothesis 1: *Firms' demand conditions that are relevant to access external finance influence positively their leverage ratios.*

Under this hypothesis it is expected that our analysis allows the verification of the following:

(i) Leverage ratios increase as firm's general economic outlook improves, *ceteris paribus*

(ii) Leverage ratios increase as firm's access to public financial support improves, *ceteris paribus*

(iii) Leverage ratios decrease as firm's own capital improves, *ceteris paribus*

(iv) Leverage ratios increase as firm's credit history improves, *ceteris paribus*

Hypothesis 2: *External financing terms and conditions influence negatively leverage ratios.*

Under this hypothesis it is expected that our analysis allows the verification of the following:

(i) Leverage ratios decrease as interest rate levels increase, *ceteris paribus*

(ii) Leverage ratios decrease as other costs of financing, such as charges, fees and commissions increase, *ceteris paribus*

(iii) Leverage ratios increase as the available size of the loan or credit line increase, *ceteris paribus*

(iv) Leverage ratios increase as the available maturity of the loan increases, *ceteris paribus*

(v) Leverage ratios decrease as collateral requirements increase, *ceteris paribus*

The SAFE questionnaire, which explores how the demand and supply factors affect SMEs access to external finance, allows for the separation of the analysis of access to finance in these two factors (Faulkender and Petersen, 2005). The first hypothesis supports the demand side through (i) general economic outlook, (ii) access to public financial support (iii) own capital and (iv) credit history, while the second hypothesis explores the supply side through (i) interest rate level, (ii) fees and commissions, (iii) collaterals, (iv) loan maturity, (v) loan size, and (vi) other conditions. Additionally, the relation between the access to external finance conditions and firms' financial structure is controlled for using common characteristics that literature has defended as important for capital structures and are questioned in the survey.

Nevertheless, several authors have studied capital structure taking into consideration financial constraints. It has been examined whether financial constrained firms have different capital structures when compared to unconstrained firms, either to study the impact of macroeconomic conditions (Korajczyka and Levy, 2003 and Campello et all, 2010) or through firm-specific characteristics (Leary, 2005). Hence it leads to the third hypothesis raised in this dissertation, as presented below.

Hypothesis 3: *External financing influences differently constrained and unconstrained firms' leverage ratios.*

In this specific case, following previous literature findings but considering the data available, the survey allows a specific measure of financial constraints to explore the third hypothesis. SMEs are questioned about their application to external finance, which supports the main goal of this dissertation. Yet, the resulting from the success that firms had in applying for external finance is also surveyed, which turns possible the last hypothesis raised.

1.4. Contribution of the present dissertation

This study adds to the literature by analyzing how the access to external financing, i.e. supply of credit and demand for credit, influences the capital structure of the SMEs considered in the Survey on Access to Finance of Small and Medium Enterprises (SAFE). To our best knowledge, this dissertation is one of the first studies exploring SAFE in order to assess the impact of access to external sources of finance on SMEs' capital structures.

Hence, the present dissertation contributes to the literature, when exploring SAFE, in the following dimensions. Firstly, it is uses qualitative data to examine a quantitative subject such as capital structure ratios, differentiating the methodology used. Secondly, having access to the questionnaire allows the usage of micro data across countries that is usually difficult to access and usually not comparable.

Moreover, the variation in the firm's capital structures has been extensively explored through demand factors, i.e. firm's characteristics. Hence, this study fills the gap by considering credit supply through bank financing terms and conditions but also firms' conditions to apply to this external finance. Additionally, the survey was conducted during the current period of financial crisis, namely in Europe, where financial constraints are likely to occur, helping the analysis of the topic. The financial crisis opens space to investigate how financial constraints impact corporate behavior and the relevance of macroeconomic conditions on the capital structure of firms.

The remainder of the study is presented as follows. Section 2 provides the literature review. Section 3 examines the data and methodology used. Section 4 discusses the results. Section 5 presents the robustness procedures used. Conclusions are reported in Section 6, while Section 7 refers the main limitations and future research. Finally, Section 8 includes all the references to the present dissertation and Section 9 presents all the tables and additional information to the data, methodology and findings reported.

2. Literature Review

Capital structure is a puzzling subject that has been explored over the decades by numerous authors. Starting with Modigliani and Miller (1958), their theorem defends the irrelevance of financing decisions to both firm value and cost of capital, as long as the main goal is value maximization.

This theorem is supported by two main propositions: (i) the irrelevance of capital structure proposition, which assuming the presence of perfect capital markets states that the value of firms is not affected by the capital structure decisions; and (ii) the linearity between cost of equity and capital structure of firms, meaning that any increase of debt leads to an increase on the cost of equity. According to this, even though debt is a cheaper source of financing, the increase of debt is compensated with an increase in the cost of equity, eliminating the advantage of using leverage.

However, there are several frictions in the market that do not support Modigliani and Miller first assumptions. By assuming perfect capital markets, the theorem led to the exclusion of important realities such as corporate taxes, bankruptcy and agency costs as well as information asymmetry. The access to external finance conditions (both the demand and supply conditions), explored in this dissertation, is also an important factor when considering capital structure decisions. Theories have tried to explain these frictions throughout the decades. Modigliani and Miller (1963) themselves reformulated the theorem, and considered the benefits and costs of debt. This created the basis for the static trade-off theory, which supports the existence of optimal capital structures. According to Myers (1977), there are major forces – the benefits and costs of leverage in firms – that push firms towards an optimal target leverage. Consequently, an optimal capital structure may be reached, where the benefits of an incremental unit of debt will just offset the costs.

The major benefits of debt taken into consideration are the tax-deductibility of debt finance and the reduction of agency problems arising from the manager-shareholder relationship. According to Miller and Scholes (1978), firms with higher expected tax rates, compared to the constant marginal personal cost, have more book leverage. As stated by Miller (1977), personal taxes can offset the benefits of interest deductibility. Moreover, DeAngelo and Masulis (1980) add that firms with non-debt tax-shields have less book leverage, creating an offsetting effect on capital structure.

Agency problems, namely manager-shareholder relationships, also increase the optimal debt ratio. According to Jensen and Meckling (1976), Easterbrook (1984) and Jensen (1986),

interests of managers are not aligned with shareholders leading managers to take actions that are not entirely consistent with the goals of the shareholders. Thus, dividends and debt help reducing funds available for managers to spend, becoming substitutes for the control of free cash flow agency problems. Firms with more profitable assets have higher dividend payouts and more leverage, when controlling for investment opportunities. Likewise, firms with larger profitable investments have lower dividend payout and leverage, when controlling for profitability.

On the other hand, the costs of leverage include the agency costs of financial distress, i.e., bankruptcy costs and agency conflicts from the stockholder-bondholder relationship. The trade-off theory defends that more profitable firms have more book leverage, whereas firms with variable earnings have less book leverage. Therefore, when profitability declines the expected bankruptcy costs rise pushing less profitable firms to lower leverage targets. Lastly, with respect to stockholder-bondholder agency problems, Fama and Miller (1972), Jensen and Meckling (1976) and Myers (1977) also defend that firms with more expected investments have lower dividend payouts and less current leverage.

Corporate finance literature has corroborated these predictions. Several studies provide direct evidence demonstrating that firms adjust their capital structure towards a target leverage. Marsh (1982) and Auerbach (1985), using a logit model, have found evidence that firms adjust towards a target debt ratio. Likewise, Taggart (1977), Jalilvand and Harris (1984) and Opler and Titman (1994) through target-adjustment models have reached the same conclusions. Nevertheless, there are also evidence from other authors demonstrating inconsistencies with the target debt ratios. Kester (1986), Long and Malitz (1985), Titman and Wessels (1988), Rajan and Zingales (1995) and Fama and French (2002) identified corporate profits as a major drawback of the trade-off theory. It finds negative relationships between debt ratios and profitability. Likewise, Myers (1984) highlights that tax effects seem to be empirically weak and Bradley et al. (1984) a strong direct relation between firm leverage and the relative amount of non-debt tax shields.

Hence, the inconsistency between authors as well as adverse selection and the transaction costs of issuing securities leads to an alternative theory, the pecking order theory.

The pecking order theory suggests a hierarchical preference regarding the financing sources. Firms prefer first the use of internal funds to the use of external funds, since it prevents the asymmetric information between managers and less-informed outside investors (Myers and Majluf, 1984) and the high costs associated with new issues (Myers, 1984). Once retained earnings are exhausted, firms prefer to issue debt. Inside investors consider retained earnings a

better source of financing than debt, but debt a better option regarding equity. It contains less asymmetry of information and is considered less risky, offering outside investors lower rates of return on debt than on equity. Lastly, when debt is no longer an option, equity is issued.

Thus, leverage is not determined by the costs and benefits of debt, characteristic of the trade-off model but by the net cash flows produced by the firm. According to Myers (1984), when controlling for investment opportunities, firms with more profitable assets have higher long-term dividend payouts and less leverage. When controlling for profitability, firms with more investments have lower long-term dividend payouts and more leverage.

Shyam and Myers (1999), supporting the pecking-order theory, are recognized by the testing strategy implemented in both theories, the trade-off model and the pecking order theory. The idea is not to test a model of capital structure options that could influence it but focus on the specifications of both theories. Once defined, these are used to test the target leverage, the mean reversion of leverage and the short-term response of dividends and debt to variation in earnings and investment.

In fact, several authors have tested various models, which include a variety of hypothesis together in the empirical tests, in order to identify the major determinants of capital structure. Titman and Wessels (1988), who included all the hypothesis jointly in the empirical tests, found that leverage decreases with uniqueness, firm size and past profitability. However, there was no support regarding non-debt tax shields, volatility, collateral value or future growth. On the other hand, Harris and Raviv (1991), who explain the conventional range of variables, conclude that leverage increases with fixed assets, non-debt tax shields, growth opportunities, and firm size and decreases with volatility, advertising expenditures, research and development expenditures, bankruptcy probability, profitability and uniqueness of the product. Several other authors tested the numerous factors that could explain the capital structure and eventually support the theories mentioned above. However, as mentioned by Frank and Goyal (2003) excluding them is an important omission but including all of them leads to tough tests for the pecking order theory.

Nevertheless, the pecking order model is a competitor to other explanatory models of capital structure, i.e. the market timing theory. According to Baker and Wurgler (2002), managers evaluate market current conditions and raise funds – debt or equity – in those that seem more favorable to them. Firms tend to issue more equity when its cost is low, issuing debt otherwise. Even though it does not consider the traditional factors described above, it takes into

consideration the access to external finance conditions (i.e. the supply side conditions such as the cost of the external finance options).

Finally, capital structure is a continuous research topic. Different authors support different views. As stated by Myers (1984), if we require the pecking order theory to explain everything, it will be easily rejected. There is no universal capital structure theory but conditional theories, highlighting important factors for different firms in different circumstances (Myers, 2003).

According to Korajczyka and Levy (2003), the variation in macroeconomic conditions can lead firms to adopt different capital structures at different points in time. Considering financial constraints, i.e. not having enough cash to undertake investment opportunities and facing severe agency costs when requesting external financing, it shows that unconstrained firms are more sensitive to variations in macroeconomic conditions. Unconstrained firms deviated from their "target" to time their issues when market conditions are more favorable, while constrained firms were more sensitive to deviations from the target leverage. Moreover, it demonstrates that unconstrained firms have counter-cyclical leverage, while constrained firms' leverage varies pro-cyclically with macroeconomic conditions. Campello et al (2010) show that constrained firms tend to use internal funding and concentrate in getting credit from banks, to deal with the financial crisis and preparing for limited access to credit in the future, respectively.

Hence, both firm-specific factors and macroeconomic conditions lead to variations on financing choices, which also change according to firm's financial market access. The market frictions that highlight capital structure choices – information asymmetry – also lead firms to be restricted by their lenders (Stiglitz and Weiss, 1981). Not only the demand side characteristics but also the supply side conditions (such as the cost of debt and leverage availability), explored in this dissertation, are important when defining the capital structure of firms. According to Leary (2005), supply frictions in the credit markets are relevant for the firms' capital structures and firms do change the composition of financing sources in response to limited credit. Small, bank-dependent firms decreased their leverage following negative loan supply shocks.

Thus, debt ratios should depend also on access to external sources of capital. When considering firm's capital structure, both the determinants of preferred leverage (demand side) and constraints on the capacity to increase leverage (supply side) should be considered (Faulkender and Petersen, 2005).

Summing up, capital structure has been studied by several authors that support different approaches in order to explain firm's financing choices. The inconsistency between empirical

results leads to the acceptability of different theories – namely, the trade-off and pecking order theory – to explain capital structures. As Harris and Raviv's (1991) conclude, the reasons and conditions that determine the capital structure choices are almost countless. However, the market frictions and the empirical periods selected among others have been pointed out as an important factor of analysis. Macroeconomics factors have highlighted the importance of financial constraints in shaping the capital structure of firms.

Hence, taking into consideration the questionnaire on access to finance of SMEs in Europe (SAFE)[1] this dissertation aims to test how the access to external finance influence the capital structure of European SMEs.

[1] There are several studies, such as Ferrando and Griesshaber (2011) and Holton, Lawless and McCann (2012), which have explored the access to external finance of SMEs in different contexts.

3. Data and Methodology

This section starts with the description of the data used in this study. Then based on the sample chosen, the defined variables are explained as well as the hypotheses behind them. Lastly, the methodology used to test the hypotheses is presented.

3.1. Data

For this analysis the Survey on Access to Finance of Small and Medium Enterprises (SAFE), in Europe was used.

The European Central Bank (ECB) has conducted the SAFE survey in half-yearly waves since 2009. Its main goal is to assess the financing needs of SMEs, their practice in accessing external finance and their perceptions regarding current economic and financial conditions. Hence, it conducts an array of questions that allows the separation between the supply and demand factors affecting the access to finance. For the supply side, terms and conditions of bank financing were considered, i.e. interest rate level, fees and comissions, collateral requirements, size of the loan and maturity of the loan. Regarding the demand side, factors affecting the availability of external finance were considered, i.e. firm's general economic outlook, access to public financial support, firm's own capital and their credit history.

The database, covering a period from 2009 to 2015, does not include the same observations, i.e. SMEs across Europe comprised in the survey, each year. Hence, this dissertation considers as sample the first wave conducted in 2015, which includes 17.979 observations. Nevertheless, since the main goal is to assess the impact of access to external finance the sample was redefined in order to capture only firms that had applied for this type of financing in the last 6 months, according with the date of the survey. Hence it includes (i) bank loan, (ii) credit line, bank overdraft or credit overdraft, (iii) trade credit or (iv) other external finance applications. After these exclusions, a final sample is left with 16.916 firms.

3.2. Variables definition

Given that the idea is to examine how the access to external finance impact firms' capital structure, a range of variables that can represent the supply and demand side of external finance are considered in order to discuss the possible impact on capital structure. The database selected for this study comprises 24 variables, which were created based on the SAFE questions. Below we describe all the variables – dependent, independent and control – used in this analysis, while in Appendix 1 we present the details on their definitions.

Dependent variables

In order to analyze the changes on SMEs capital structures, the following variables are used as proxies.

DebtoAssets is the increase of firms' debt compared to assets over the past 6 months according with the date of the survey. The ratio of debt to total assets is the common variable to assess firm's leverage, which indicates the proportion of assets that are financed with debt. Moreover, Shyam and Myers (1999), Fama and French (2002) and Frank and Goyal (2003) use the variation of this ratio to analyze capital structure theories, such as trade-off and pecking order theory. Since the data is taken from a survey, this represents the best proxy to assess variation in firms' leverage.

BankLoan is the raise of a new loan or a renewal of the loan over the past 6 months according with the date of the survey. When considering external finance, several external sources of financing, from internal funds to trade credit were questioned. Bank debt represents one of the most common costly external sources of financing. Even though it is included in *DebtoAssets*, this variable aims to represent solely its effect.

Explanatory variables

In order to explain changes in SMEs capital structure we should take into account both demand and supply factors according with SAFE, i.e. factors affecting the availability of external finance and terms and conditions of bank financing, respectively. Regarding the latter, the idea is to include the frictions firms have encountered when trying to access external finance, as performed by Campello, Graham and Harvey (2010). Hence, variables are divided into the following two main categories:

(i) Demand conditions proxies

Several questions were asked about external financing availability and willingness of external partners to provide financing. However, the "availability" is influenced by firms' performance and historical behaviors. Hence, firm's factors affecting financing availability were taken into consideration:

GenEconOutlook is the firm's perspective regarding the change in its general economic outlook. It is a dichotomous variable that assumes 1 if it improved over the last 6 months before

the questionnaire. Yet, it assumes 0 if its general economic outlook perspective remained unchanged or deteriorated during the same period.

AccessPubFin represents the access to public financial support, over the past 6 months according with the date of the survey. It is also a dichotomous variable that assumes 1 if it improved over the last 6 months before the questionnaire. Yet, it assumes 0 if the access to public finance remained unchanged or deteriorated during the same period. According to Faulkender and Petersen (2005), firms without access to public debt markets are constrained by private lenders in the amount they can rise, resulting in lower debt ratios.

OwnCapital represents the improvement of the firm's own capital, over the past 6 months according with the date of the survey. It is a dichotomous variable that assumes 1 if it improved over the last 6 months before the questionnaire. Yet, it assumes 0 if its own capital remained unchanged or deteriorated during the same period.

CreditHist represents the improvement of the firm's credit history, over the past 6 months according with the date of the survey. It is a dichotomous variable that assumes 1 if it improved over the last 6 months before the questionnaire and 0 otherwise, i.e. remained unchanged or deteriorated over the same period.

(ii) Bank loan supply proxies

Supply side drivers can affect credit conditions, without being directly related with the borrower's characteristics. Here terms and conditions of bank financing (i.e. bank loans, overdrafts and credit lines) are used as proxy variables.

IntRate represents the change of the level of interest rates over the past 6 months according with the date of the survey. It is a dichotomous variable that assumes 1 if it increased over the last 6 months before the questionnaire and 0 otherwise, which means remaining unchanged or decreasing during the same period.

*FeesandComiss is a*n extension of the costs of financing besides interest rates. Here the change of the level of charges, fees and commissions are considered. It is also a dichotomous variable that assumes 1 if it increased over the last 6 months before the questionnaire and 0 otherwise.

Collat are the changes on the collateral requirements demanded over the past 6 months according with the date of the survey. Therefore, if banks have increased their collateral demands to provide finance the variable equals to 1, and 0 otherwise.

LoanMat refers to the change in the maturity of the loan over the past 6 months according with the date of the survey. It is a dichotomous variable that assumes 1 if the loan maturity's availability increased over the last 6 months before the questionnaire. Yet, it assumes 0 if its availability remained unchanged or decreased during the same period.

LoanSize refers to the change in the size of the loan over the past 6 months according with the date of the survey. It is a dichotomous variable that assumes 1 if the loan size increased over the last 6 months before the questionnaire. Yet, it assumes 0 if it remained unchanged or decreased during the same period. Leary (2005) defends that firms without access to public debt markets need substitute sources of capital when loan supply reduces. These replacements result in relatively lower leverage following loan supply contractions.

OtherCond represents specific requirements to access external financing, specifically bank loans. Thus, it indicates whether required guarantees, information requirements, procedures, time required for loan approval or loan covenants increased over the past 6 months. As a dichotomous variable, if these requirements increased, it equals to 1. If these requirements remained unchanged or decreased, this variable equals to 0.

Control variables

To determine the relationship between the change in leverage and the access to external finance, i.e. the supply and demand effects described above, it is important to control for other firm characteristics that may influence leverage ratios (Faulkender and Petersen, 2005).

There are several characteristics studied in the literature that are also present in the SAFE questionnaire. By including these nominal variables, it is possible to control for determinants of leverage that are common within characteristics of firms.

Country is a nominal variable that represents the country where each firm is based. Since the survey considers the 28 countries in Europe, countries were selected based on G8, the eight most industrialized countries that meet to discuss global issues, along with their size. Hence, France, Germany, Italy and United Kingdom were considered together with Spain and Portugal.

Industry is a nominal variable that can assume, according with the survey division the following activities: Industry (Mining and Manufacturing), Construction, Trade (Wholesale and Retail Trade), Services (Transport, Real State, Other Services) or Other Activities.

Ownership is a nominal variable that represents who owns the larger stake in the enterprise.

Thus, according to the survey answers, it can assume the following owners: Public shareholders, Family or entrepreneurs, Venture Capital Enterprises or Business Angels, One owner only, or lastly Other enterprises or business associates.

Maturity is a nominal variable that represents how old is the firm, i.e. it works as a measure of maturity of firms. Then, according to the survey options to the question, it can assume the following ranges: Old (10 years or more), Middle (5 years or more but less than 10 years), Young (2 years or more but less than 5 years) or Startup (Less than 2 years).

Size is a nominal value that represents the number of employees the enterprise employs either full or part time in all of its locations. Thus, the number of employees is used as a proxy for size and can assume the following dimensions: Micro (1-9 employees), Small (10-49 employees), Medium (50-249 employees) or Large (250+ employees). Historically leverage has been positively correlated with size (Harris and Raviv, 1991; Fama and French, 2002; Frank & Goyal, 2003). Likewise, according to Faulkender and Petersen (2005), small private firms, with the less public information are more credit constrained.

Profit is a dichotomous variable that represents changes in profit (net income after taxes) over the last 6 months before the questionnaire. As a dichotomous variable, if profitability increased, profit equals to 1. If it remained unchanged or decreased, this variable equals to 0. Profitability is an important characteristic when studying capital structures, since it either supports the trade-off or the pecking order theory. Hence, recognized authors such as Myers (1977) support the positive correlation between leverage and profit until it reaches an optimal target leverage. However, several authors defend that more profitable firms have lower leverage (Titman and Wessels, 1988; Harris and Raviv 1991; Fama and French, 2002; Frank & Goyal, 2003).

FixedInvest is a dichotomous variable that represents changes in firm's fixed investment – investment in property, plant, machinery or equipment – over the last 6 months before the questionnaire. Therefore, it assumes 1 if it increased over the last 6 months before the questionnaire. Yet, it assumes 0 if fixed investment remained unchanged or decreased during the same period. Investment is widely considered by literature, but different proxies are used leading to conflicting evidence regarding the relation between investment and leverage (Fama and French, 2002). Hence, according with Harris and Raviv (1991) and Fama and French (2002), investments or expected investments are negatively related with leverage. Moreover, since it includes investment in tangible assets, it can measure firm's assets tangibility as performed by Faulkender and Petersen (2005). Firms with more tangible assets are more likely to have higher debt ratios (Harris and Raviv, 1991; Shyam and Myers, 1999; and Frank and

Goyal, 2003).

IWC is a dichotomous variable that represents changes in inventories and working capital over the last 6 months before the questionnaire. The variable assumes 1 if it increased over the last 6 months before the questionnaire and 0 otherwise, i.e. remained unchanged or decreased over the same period.

UnconstDebt is a dichotomous variable, which represents a successful application to external sources of finance, i.e. (i) bank loan, (ii) credit line, bank overdraft or credit line overdraft, (iii) trade credit or (iv) other external finance. Hence, the variable takes 1 if the firm succeeded in getting at least one of the finance sources and 0 otherwise. Numerous authors have defined constraints as a driver to analyze the sample selected (Korajczyka and Levy, 2003; Campello et all, 2010). Several criteria can be used according to the purpose of the study and the data available. However, the SAFE question itself characterized financial constrained firms. After excluding companies that did not apply to external finance, firms that succeed in applying to at least one external finance source were considered as unconstrained, and constrained otherwise.

AccesstoFin is a dichotomous variable that represents how SMEs consider, from 1 to 10, "Access to Finance" as the most pressing problem. The variable assumes "1" if firms select "Access to Finance" as their most pressing problem between 1 and 5, and "0" if firms select "Acess to Finance" as the most pressing problem between 6 and 10.

CrisisCountries is a dichotomous variable generated to classify SMEs based on their countries macroeconomic conditions. The variable assumes "1" if the categorical variable country assumes "Greece", "Italy", "Ireland", "Portugal" or "Spain"; and "0" otherwise, i.e. other countries that were not extremely influenced by the crisis.

NoLarge is a dichotomous variable created to classify SMEs according with their size. The variable assumes "1" if the categorical variable size assumes "Micro", "Small", or "Medium"; and "0" if size is "Large".

3.3. Methodology

To assess how the access to external financing impacts the capital structure of SMEs across Europe, testing the hypothesis formulated above, several regressions were created and tested.

The basis is a general linear regression, which aims to examine how the access to external financing impacts the capital structure of SMEs across Europe. Thus, firms' leverage variables

(*DebtoAssets* and *BankLoan*) are considered a function of access to market capital variables, i.e. demand conditions (*GenEconOutlook, AccessPubFin, OwnCapital and CreditHist*) and bank loan supply (*IntRate, FeesandComiss, Collat, LoanMat, LoanSize and OtherCond*). A set of control variables (*Country, Industry, Ownership, Maturity, Size, Profit, FixedInvest, and IWC*) is also considered.

Firstly, regressions were run as stated below.

$$DebtoAssets_i = \alpha + \beta_1 GenEconOutlook_i + \beta_2 AccessPubFin_i + \beta_3 OwnCapital_i + \beta_4 CreditHist_i + \beta_5 IntRate_i + \beta_6 FeesandComiss_i + \beta_7 Collat_i + \beta_8 LoanMat_i + \beta_9 LoanSize_i + \beta_{10} OtherCond_i + \beta_{11} FirmControlVariables_i \quad \textbf{(1)}$$

$$BankLoan_i = \alpha + \beta_1 GenEconOutlook_i + \beta_2 AccessPubFin_i + \beta_3 OwnCapital_i + \beta_4 CreditHist_i + \beta_5 IntRate_i + \beta_6 FeesandComiss_i + \beta_7 Collat_i + \beta_8 LoanMat_i + \beta_9 LoanSize_i + \beta_{10} OtherCond_i + \beta_{11} FirmControlVariables_i \quad \textbf{(2)}$$

SAFE has a range of questions that allowed the definition of these variables but they are limited by areas of interest, which influences their relevance regarding different external sources of financing. Thus, even though the variables that represent the access to external finance, i.e. the supply and demand side, both try to explain the SMEs capital structure, they revealed to be more appropriate depending on the dependent variable.

Hence, in a second version of the regressions proposed that will be considered across the remaining dissertation, the regressions models convert to:

$$DebtoAssets_i = \alpha + \beta_1 GenEconOutlook_i + \beta_2 AccessPubFin_i + \beta_3 OwnCapital_i + \beta_4 CreditHist_i + \beta_5 FirmControlVariables_i \quad \textbf{(3)}$$

$$BankLoan_i = \alpha + \beta_1 IntRate_i + \beta_2 FeesandComiss_i + \beta_3 Collat_i + \beta_4 LoanMat_i + \beta_5 LoanSize_i + \beta_6 OtherCond_i + \beta_9 FirmControlVariables_i \quad \textbf{(4)}$$

As observable, the variables that represent the demand and supply side are not considered in both regressions proposed. The demand side relate to the conditions that influence the access to external finance in general, which in this dissertation will try to explain *DebtoAssets* (the debt variables that comprise the several possibilities of financing). The supply side as

mentioned above relate to the terms and conditions to raise bank loans, implying their relevance in explaining a specific type of debt also considered, i.e. *BankLoan* variable.

Regarding the estimators used, the OLS estimators, one of the most common regression methodologies, allows the inclusion of binary or categorical variables on the right side of the regressions. However, it is a linear probability model, whose errors (i.e. residuals) disrupt the homoscedasticity and normality of errors assumptions, when using binary dependent variables. The binary nature of variables, inducing heteroscedasticity, results in invalid standard errors and hypothesis tests.

Therefore, the most standard regression alternatives are either the probit or the logistic/logit estimators. Even though the distributional assumptions are vaguely different (i.e. involving either a normal or logit distribution, respectively), both models are maximum likelihood estimators, leading to similar results. Specifically, while the probit coefficient refers to the likelihood of the dependent variable being equal to "1", with a one percent increase in the independent variable; the logit refers the log odds of the dependent variable being equal to "1", with a one unit increase in the independent variable. Still, through an additional command, the logit reports also the "odds", i.e. the ratio of the probability of success and the probability of failure for a given independent variable regarding its effect on the dependent variable. Thus, since both dependent variables are dichotomous, a probit and logit model are used to estimate the two regression models considered, at first. Additionally, they are both controlled for heteroscedasticity with the robust option provided by Stata.

Nevertheless, the marginal impact of the independent variable's change is not constant. While in the OLS estimator the marginal effect is the same at every observation of a specific variable (the slope of the regression line remains constant for each observation), the probit and logit estimators refer to an unobserved dependent variable. The only interpretation we can take is the direction of the average effect. Hence, a marginal analysis is performed, allowing the interpretation of the predicted probability of the dependent variable given the coefficient of the variable of interest. By default, Stata reports Marginal effects at the Means, i.e. the marginal effect of one variable at the other independent variables' mean.

However, this dissertation considers the Average Marginal Effects. Instead of considering the other variables at their average values (i.e. considering the average of dummy variables), it compares for each specific variable two hypothetical populations (the one assuming "1" and the one assuming "0") that have the same values on the remaining independent variables. Thus, the only difference between the two populations is the specific variable analyzed and it must be

the cause of the differences in the likelihood of the dependent variable (e.g. *DebtoAssets* or *BankLoan*).

4. Empirical Analysis and Results

4.1. Descriptive statistics

The tables presented below include general summary statistics (Table I), summary statistics by constraints (Table II), as well as the correlation coefficients (Table III). Nevertheless, summary statistics by Country (Appendix 3), Firm industry (Appendix 4) and Size (Appendix 5) are also mentioned and presented in the appendix.

Taking into consideration the general summary statistics (Table I), Panel A, which presents the capital structure variables, demonstrates that only 14,5% of SMEs have increased their proportion of debt to assets. However, *BankLoan* have increased in 42,7% of SMEs. Hence, it is important to understand that the capital structure proxy variable, i.e. *DebtoAssets*, includes not only bank loans but also other components such as trade credit and credit overdraft, and not all the firms in the sample took new loans or draw on credit lines, bank overdraft or credit cards overdraft in the period of analysis.

From Panel B, which represents the access to external finance variables, it is possible to see from the supply side that its terms and conditions have not increased for most SMEs in Europe. *FeesandComiss* stands out as the variable where more firms (28,0%) revealed that have increased in the last 6 months before the questionnaire. The size of the loan, proxied by *LoanSize*, other conditions (i.e. guarantees, information requirements, procedures, time required for loan approval or loan covenants) proxied by *OtherCond* and collaterals, proxied by *Collat* are the subsequent variables that increased the most among firms. Regarding the demand side, the firms' own capital reveals to be the variable in which more firms reported an improvement in the last 6 months before the questionnaire (30,4%). Even with low percentages among firms, improvements in credit history, proxied by *CreditHist* and general economic outlook, proxied by *GenEconOutlook*, are the highest after *OwnCapital*.

In Panel C, where control variables are considered, profit, fixed investment and inventories and working capital are highlighted since the remaining control variables are categorical variables that will be analyzed below. Hence, it is possible to conclude that 34,4%, 28,7% and 22,3% of firms have increased their profits, fixed investment, and inventories and working capital, respectively.

Table I
General Summary Statistics

Table I reports the descriptive statistics for the variables used in the regression analysis, aggregated into panels. Panel A presents the changes of capital structure proxies for SMES in Europe. Panel B contains the variables that try to explain the impact of access to external finance on capital structure, both the supply and demand side. Panel C includes also the control variables considered influential on capital structure of firms by literature (*Profit, FixedInvest, IWC*). For the sake of simplicity, this table does not display all the control variables considered in the regressions, but they all are presented in Appendix 2. The summary statistics are presented as follows: number of observations, mean, standard deviation, minimum and maximum values, kurtosis, skewness, and quartiles 25, 50, 75 and 90.

Variables	Obs.	Mean	St. Dev.	Min	Max	Kurtosis	Skewness	p25	p50	p75	p90
Panel A: Capital Structure Variables											
DebtoAssets	16 916	0,1452	0,3524	0	1	5,0547	2,0136	0	0	0	1
BankLoan	8 176	0,4267	0,4946	0	1	1,0877	0,2963	0	0	1	1
Panel B: Access to External Finance											
GenEconOutlook	16 916	0,2231	0,4163	0	1	2,7694	1,3302	0	0	0	1
AccessPubFin	16 916	0,0701	0,2552	0	1	12,3504	3,3690	0	0	0	0
OwnCapital	16 916	0,3044	0,4602	0	1	1,7224	0,8499	0	0	1	1
CreditHist	16 916	0,2521	0,4342	0	1	2,3034	1,1417	0	0	1	1
IntRate	4 878	0,1501	0,3572	0	1	4,8405	1,9597	0	0	0	1
FeesandComiss	4 878	0,2798	0,4490	0	1	1,9622	0,9809	0	0	1	1
LoanSize	4 878	0,2386	0,4263	0	1	2,5041	1,2264	0	0	0	1
LoanMat	4 878	0,1015	0,3020	0	1	7,9675	2,6396	0	0	0	1
Collat	4 878	0,2015	0,4012	0	1	3,2147	1,4882	0	0	0	1
OtherCond	4 878	0,2271	0,4190	0	1	2,6964	1,3025	0	0	0	1
Panel C: Control Variables											
Profit	16 916	0,3441	0,4751	0	1	1,4310	0,6565	0	0	1	1
FixedInvest	16 916	0,2871	0,4524	0	1	1,8862	0,9414	0	0	1	1
IWC	16 916	0,2230	0,4163	0	1	2,7716	1,3310	0	0	0	1

When summarizing variable statistics by country (Appendix 3), most observations come from Germany, France and Italy. Regarding the access to external finance variables, (i) the demand variables that have the major improvements among countries are *GenEconOutlook* and *CreditHist*; while (ii) the supply variables with the major increases among countries are *FeesandComiss* and *LoanSize*. Considering summary statistics by industry (Appendix 4), most of SMEs are from Trade and Services sectors. Nevertheless, *DebtoAssets* and *BankLoan* report similar increase frequency between sectors. When analyzing the access to external finance variables, (i) in the demand side variables, *OwnCapital* has the highest number of improvements together with *CreditHist*; while (ii) the supply variables that have increased the most are *FeesandComiss* and *OtherCond*. Regarding the SMEs' size, summary statistics (Appendix 5) suggest that most of SMEs surveyed are micro, followed by small and medium firms. This is consistent with the fact that large firms are included only as a small control group. Nevertheless, *DebtoAssets* and *BankLoan*, as dependent variables, present more increases for large and medium sizes. Considering the access to external finance variables, (i) the demand side presents *OwnCapital* and *CreditHist* as the variables with the larger improvements across size categories; while (ii) for the supply variables of interest, the variables that have increased the most are *FeesandComiss* and *OtherCond*.

Finally, the third hypothesis of this dissertation aims to understand how the access to external finance varies with financial constraints. In order to analyze it, the sample used in this dissertation is split in two sub-samples: (i) Unconstrained SMEs and (ii) Constrained SMEs, based on SMEs' success in their application to external sources of financing. Hence, from Table II, it is possible to understand that the sample contains more constrained firms than unconstrained firms. As expectable, unconstrained firms increase on average more 11,4% leverage than constrained firms, when measured throughout *DebtoAssets*, and 37% more, when considering *BankLoan*. When analyzing the access to external finance variables, the demand side highlights *OwnCapital* and *CreditHist* as the variables with more improvements for both unconstrained (34,4% and 34,1%, respectively) and constrained (28,7% and 21,2%, respectively). Nevertheless, these variables have improved less for constrained firms, as could be expected. Regarding the supply side, *FeesandComiss* is the variable with more increase frequency, both for unconstrained (23,7%) and constrained (41,7%) firms. With the same reasoning, fees and commissions increased more for constrained firms, as expected given their condition.

Table II
Summary Statistics by Constraints

Table II presents the changes in the capital structure proxy (*DebtoAssets* and *BankLoan*) as well as the access to external finance explanatory variables. Both variables that are a proxy for the demand side (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist*) and supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat* and *OtherCond*) are presented. The number of observations and the mean values are presented for these variables, according to the firms constraints. The subgroups Unconstrained and Constrained firms define how successful firms were in getting the external finance they applied for, i.e. (i) bank loans, (ii) credit line, bank overdraft or credit line overdraft, (iii) trade credit or (iv) other external finance. Hence, Unconstrained firms were successful in getting at least one source of external finance. The coefficients' significance was tested with a t-test, whose mean-difference is also presented. The following sign applies for the statistical significance of coefficients: * p<0,01.

Variables	Unconstrained Firms		Constrained Firms		Mean Difference (Constrained – Unconstrained)
	Obs.	Mean	Obs.	Mean	
DebtoAssets	5 279	0,2237	11 637	0,1097	-0,1141*
BankLoan	3 667	0,6310	4 509	0,2606	-0,3704*
GenEconOutlook	5 279	0,2917	11 637	0,1920	-0,0997*
AccessPubFin	5 279	0,0960	11 637	0,0583	-0,0378*
OwnCapital	5 279	0,3436	11 637	0,2867	-0,0570*
CreditHist	5 279	0,3412	11 637	0,2117	-0,1294*
IntRate	3 719	0,1223	1 159	0,2390	0,1167*
FeesandComiss	3 719	0,2372	1 159	0,4167	0,1796*
LoanSize	3 719	0,2640	1 159	0,1570	-0,1070*
LoanMat	3 719	0,1086	1 159	0,0785	-0,0301*
Collat	3 719	0,1560	1 159	0,3477	0,1918*
OtherCond	3 719	0,1772	1 159	0,3874	0,2102*

Looking at the correlation matrix (Table III), the dependent variables that try to represent changes in SMEs capital structures vary with the variables of interest, i.e. variables selected to represent the access to external finance.

Table III
Correlation matrix between Capital Structure and Access to External Finance variables

Table III reports the correlation between the variables that represent the changes in capital structure of SMEs in Europe (*DebtoAssets* and *BankLoan)* and the ones that try to explain the impact of access to external finance on them. Hence both variables that are a proxy for the demand side (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist*) and supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat* and *OtherCond*) are presented. For the sake of simplicity, this table does not display the control variables considered in the regressions, but they are all presented in Appendix 6. The following sign applies for the statistical significance of coefficients: * p<0,05.

Variables	Capital Structure Variables	
	DebtoAssets	BankLoan
DebtoAssets	1,0000	0,1527*
BankLoan	0,1527*	1,0000
GenEconOutlook	(0,0001)	0,0691*
AccessPubFin	0,0072	0,0244*
OwnCapital	(0,0430)*	0,0387*
CreditHist	0,0021	0,0671*
IntRate	0,0869*	(0,0004)
FeesandComiss	0,1335*	(0,0496)*
LoanSize	0,0740*	0,1039*
LoanMat	0,0481*	0,0809*
Collat	0,1237*	(0,0350)*
OtherCond	0,1149*	(0,0432)*

Generally, all the variables have low linear correlation between them. If we consider the dependent variables (*DebtoAssets* and *BankLoan*), the increase in one will increase the other by 15,3%. Analyzing access to external finance variables, it is observable that supply side is the group of variables that are mostly correlated with the dependent variables, specifically *DebtoAssets*. If supply side variables increase, i.e. *IntRate, FeesandComiss, LoanSize, LoanMat, Collat* or *OtherCond*, *DebtoAssets* will increase by 8,7% (*IntRate*), 13,4% (*FeesandComiss*); 7,4% (*LoanSize*); 4,8% (*LoanMat*); 12,4% (*Collat*) or 11,5% (*OtherCond*). Nevertheless, *BankLoan* dependent variables presents lower correlations with the same explanatory variables. Considering *BankLoan, LoanSize* and *LoanMat* are the variables most correlated with the dependent variable, leading them to increase by 10,4% and 8,1%, respectively. Hence, based on the correlation matrix results, it is expected that increases on the availability of size and maturity of loans will increase the usage of Bank Loans by SMEs.

4.2. Probit and average marginal effects

According to the methodology described in section 3.3, several models were tested in order to answer the research questions proposed in section 1.3 and provide conclusions regarding the present dissertation framework.

The variables that represent the demand and supply side were firstly considered in both regressions proposed, i.e. regressions (1) and (2). Namely, *DebtoAssets* and *BankLoan* were considered as a function of all the access to external finance variables. Nevertheless, the variables of interest revealed to be more appropriated depending on the dependent variable. Thus, *DebtoAssets* was considered a function of the demand side, generating regression (3), while *BankLoan* was regressed as a function of the supply side variables, generating regression (4). The idea is to understand how the demand conditions (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist*) influence the external finance in general (*DebtoAssets*) and how the terms and conditions to raise bank loans (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat and OtherCond*) influence that specific source of financing (*BankLoan*).

Concerning the empirical analysis, even though regressions (3) and (4) revealed from the beginning to be the most appropriated to explain changes in SMEs capital structure, regressions (1) and (2) were also analyzed in a primary stage, using only the variables of interest. As presented in Table IV, regression (1) reveals that *OwnCapital* and *CreditHist* are the demand conditions that are statistically relevant to explain *DebtoAssets* changes. An improvement on SMEs own capital or credit history has a negative impact on debt change, statistically significant at 1% and 5%, respectively. As expected, these results are consistent if logit models are used instead of probit models (Appendix 7). Even though their coefficients are different, without a marginal analysis, these are the only conclusions that are possible to draw. Hence, taking into consideration the average marginal effect, the improvement of SMEs *OwnCapital* and *CreditHist* decreases the probability of an increase in leverage by 4,7% and 2,9%, respectively and holding everything else constant. Supporting hypothesis 1, item (iii), it applies also for both models.

FeesandComiss, LoanSize, Collat and *OtherCond* are also statistically relevant on *DebtoAssets* changes when considering the supply variables. However, when interpreting the impact of *FeesandComiss, Collat* and *OtherCond* on leverage changes, we conclude that an increase in these variables leads to an increase of *DebtoAssets*, at 1% significance level for *FeesandComiss* and *Collat* and at 5% significance level for *OtherCond*. Hence, besides not appearing consistent for the present dissertation, it becomes contradictory to the hypothesis 2, items (ii) and (v). On

the other hand, *LoanSize* is statistically relevant at 1% level, influencing positively *DebtoAssets*. When analyzing the average marginal effects, the increase of *LoanSize* increases the probability of a positive change in *DebtoAssets* by 7,7%, holding everything else constant. Supporting hypothesis 2, item (iii), it applies also for both models.

Considering regression (2), also reported in Table IV, *Owncapital* is the only demand condition statistically relevant when influencing changes in *BankLoan*. An improvement on SMEs *Owncapital* has a positive impact on *BankLoan* changes, statistically relevant at 1%. Taking into consideration the average marginal effect, the improvement of SMEs own capital increases the probability of a leverage change by 5,5%. Nevertheless, these results do not support any item of hypothesis 1, for both models. Analyzing the supply side variables, *FeesandComiss, LoanSize* and *LoanMat* reveal to be statistically relevant on *BankLoan* changes. An increase of *FeesandComiss* has a negative impact on leverage change, at 5% significance level, while an increase of *LoanSize* and *LoanMat* has a positive impact on leverage change at 1%. When considering the average marginal effect, the increase of *FeesandComiss,* decreases by 4,3% the probability of an increase in *BankLoan*, whereas the increase in the *LoanSize* or *LoanMat* increases the probability of a positive change in *BankLoan* by 8,5% and 8,2%, respectively, and holding everything else constant. Complying with hypothesis 2, items (ii), (iii) and (iv), these results hold for both models.

When looking at regression (3), it is understandable that demand conditions such as *GenEconOutlook* and *AccessPubFin* do not impact the change in SMEs debt (*DebtoAssets*), given its non-statistical relevance. However, it is observable that an improvement of SMEs own capital has a negative impact on debt change, while an improvement on SMEs credit history has a positive impact on changes in their debt levels. These effects are statistically significant at 1% and 5% level, respectively. As expected, these impacts are also consistent with the logit model. Taking into consideration the average marginal effect, the negative impact of *Owncapital* and the positive impact of *CreditHist* remain unchanged. Namely, the improvement of SMEs *Owncapital* decreases the probability of an increase in leverage by 4,2%. Nevertheless, the improvement of SMEs credit history increases the probability of a leverage increase by 1,6%, holding everything else constant. Supporting hypothesis 1, item (iii) and (iv), it applies also for both models.

Concerning the results from regression (4), the supply explanatory variables such as *IntRate*, *Collat* and *OtherCond* are not statistical relevant when explaining the changes in *BankLoan*. However, an increase in *BankLoan* is influenced (i) negatively by *FeesandComiss* and (ii)

positively by *LoanSize* and *LoanMat*, at a 1% significance level. As expected, these conclusions are also consistent with the logit model. Moreover, when analyzing the average marginal effects, the sign impact of the statistical relevant variables of interest remains unchanged. Specifically, the increase of *FeesandComiss* decrease by 4,7% the probability of an increase in *BankLoan*, whereas the increase in the *LoanSize* or *LoanMat* increase the probability of a positive change in *BankLoan* by 9,7% and 9,1%, respectively, and holding everything else constant. Complying with hypothesis 2, items (ii), (iii) and (iv), these results hold for both models.

Before continuing with the empirical analysis, it is possible to observe the less accurate results from regressions (1) and (2), and understand why the later regressions (3) and (4) were used as baseline in the remaining of this dissertation. Therefore, only regressions (3) and (4) are analyzed and applied throughout the empirical results, as it will be described below. Moreover, it is important to highlight that both models, appropriated to study binary and categorical variables and used in this dissertation, i.e. probit (Table IV) and logit (Appendix 7) models, draw the same conclusions when analyzing the average marginal effects. Even though their coefficients differ in their interpretations, when applying the average marginal effects the results are identical. Therefore, probit model and its average marginal effects will be used from now onwards.

Table IV

Direct effect of Access to External Finance variables on Capital Structure: probit and average marginal effects

Table IV reports the probit regressions (1) and (2) from regressing *DebtoAssets* and *BankLoan* on all the access to external finance variables. The probit regressions (3) and (4) are also reported from regressing *DebtoAssets* on variables that are a proxy for demand side (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist)* and from regressing *BankLoan* on variables that are a proxy for the supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat* and *OtherCond*), respectively. The correspondent average marginal effects are also presented in order to allow a correct interpretation of the variables' coefficients. Control variables are not included since the present table aims to report only the direct effect of the variables of interest. The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**Probit (1) and (2)**		**Average Marginal Effects**		**Probit (3) and (4)**		**Average Marginal Effects**	
	DebtoAssets (1)	BankLoan (2)	DebtoAssets	BankLoan	DebtoAssets (3)	BankLoan (4)	DebtoAssets	BankLoan
GenEconOutlook	(0,0535)	0,0623	(0,0166)	0,0222	0,0144		0,0033	
AccessPubFin	0,0520	0,0200	0,0162	0,0071	0,0582		0,0132	
OwnCapital	(0,1514)***	0,1534***	(0,0471)***	0,0548***	(0,1831)***		(0,0417)***	
CreditHist	(0,0931)**	0,0271	(0,0290)**	0,0097	0,0722**		0,0164**	
IntRate	0,0896	0,0984	0,0279	0,0351		0,0853		0,0305
FeesandComiss	0,2568***	(0,1216)**	0,0799***	(0,0434)**		(0,1307)***		(0,0468)***
LoanSize	0,2483***	0,2376***	0,0772***	0,0848***		0,2703***		0,0968***
LoanMat	0,1012	0,2284***	0,0315	0,0815***		0,2552***		0,0914***
Collat	0,1975***	(0,0343)	0,0615***	(0,0122)		(0,0463)		(0,0166)
OtherCond	0,1280019**	(0,0931)	0,0398**	(0,0332)		(0,0957)		(0,0343)
Constant	(0,8107)***	0,3263***	-	-	(1,0300)***	0,3982***	-	-
Observations	4 878	3 893			16916	3893	16 916	3 893
Pseudo R2	0,0323	0,0177	-	-	0,0029	0,0144	-	-
Wald chi2	178,77***	82,83***	-	-	41,21	68,63	-	-

4.3. Additional controls

After analyzing the impact of the variables of interest on *Debtoassets* and *Bankloan*, respectively, several additional control variations were added in order to understand the consistency of the results described above. Here the same regressions (3) and (4) analyzed above, were estimated but complemented with the control variables, as reported in Table V. The control variables added to the regressions were a set of categorical variables, specifically (i) Country, (ii) Firm Industry, (iii) Ownership, (iv) Maturity, (v) Size. Moreover, three binary variables that try to represent the continuous variables usually considered by the literature review when studying capital structure changes, were added i.e. (i) Profit, (ii) Fixed Investment and (iii) Net Working Capital. Notice that these former variables are binary variables that represent the change of the underlying concept for SMEs.

From Table V, demand conditions and its relation with *DebtoAssets* remained unchanged. Specifically, the *GenEconOutolook* and the *AccessPubFin* do not impact the change in debt, given their statistical insignificance, whereas SMEs' *OwnCapital* and *CreditHist* remain relevant statistically speaking. Besides their impact signs (i.e. negative and positive, respectively) remaining the same, their average marginal effects remain almost the same. Hence, the probability of SMEs increase the debt to assets is 4,1% for firms that improved their *OwnCapital* and 1,6% for firms that improved their *CreditHist*, holding all the other explanatory variables constant. Thus, hypothesis 1, item (iii) and (iv) are still validated.

Nevertheless, when looking at the supply side variables and their impact on *BankLoan*, i.e. regression (2), a change in the explanatory variables is observable. With the introduction of all the control variables mentioned, *Collat* and *OtherCond* remain statically irrelevant, while *IntRate* becomes statistically relevant. Nevertheless, when interpreting *IntRate* impact on leverage changes, we conclude that an increase in the *IntRate* leads to an increase of *BankLoan* by SMEs. Hence, besides not appearing relevant for the present dissertation, it becomes contradictory to the hypothesis 2, item (i) raised in section 1.3.

On the other hand, *FeesandComiss, LoanSize* and *LoanMat* remain statistically relevant as well as their impact on leverage changes. An increase in *BankLoan* is influenced (i) negatively by *FeesandComiss*, at 10% significance level and (ii) positively by *LoanSize* and *LoanMat*, at a 1% significance level. Yet, when analyzing the average marginal effects, their impact on leverage changes diminishes. Namely, the increase in *FeesandComiss* decrease by 3,1% the probability of a positive change in *BankLoan*, while the increase of *LoanSize* or *LoanMat*, increases by 7,6% and 8,9% the probability of an increase in *BankLoan*, respectively and

holding everything else constant. Hence, these supply variables still support hypothesis 2 raised in this dissertation, specifically, item (ii), (iii) and (iv).

Table V
Regressions results with control variables: probit and average marginal effects

Table V reports the probit regressions (3) and (4) from regressing *DebtoAssets* on variables that are a proxy for demand side (*GenEconOutlook, AccessPubFin, OwnCapital and CreditHist)* and from regressing *BankLoan* on variables that are a proxy for the supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat and OtherCond*), respectively. The average marginal effects are also presented, allowing a correct interpretation of the variables' coefficients. For the sake of simplicity, this table does not display the control variables considered in the regressions, but they are all presented in Appendix 8.1. The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**Probit (3) and (4)**		**Average Marginal Effects**	
	DebtoAssets (3)	BankLoan (4)	DebtoAssets	BankLoan
GenEconOutlook	(0,0008)		(0,0002)	
AccessPubFin	0,0142		0,0032	
OwnCapital	(0,1852)***		(0,0411)***	
CreditHist	0,0615**		0,0136**	
IntRate		0,1295**		0,0453**
FeesandComiss		(0,0881)*		(0,0308)*
LoanSize		0,2164***		0,0756***
LoanMat		0,2551***		0,0891***
Collat		(0,0314)		(0,0110)
OtherCond		(0,0867)		(0,0303)
Constant	(1,2366)***	0,1041	-	-
Observations	16 916	3893	16 916	3893
Pseudo R2	0,0282	0,0371	-	-
Wald chi2	382,39***	178,28***	-	-

4.4. Constraints analysis

Once the main insights regarding how the changes in capital structures are affected by access to external finance drivers are presented, it is now possible to understand how the previous results hold when taking into consideration constraints faced by SMEs in Europe, i.e. the third hypothesis underlying this dissertation.

In order to study the financial constraints impact on access to external finance and its relation with changes in leverage, *UnconstDebt* variable was generated. Taking into consideration SMEs that succeed in their applications to external sources of financing and SMEs that did not succeed, the former variable assumes "1" or "0", respectively, and the sample used in this dissertation is split in two sub-samples: (i) Unconstrained SMEs and (ii) Constrained SMEs.

When looking at the results of the sample divided by the *UnconstDebt* variable (Table VI), it is observable changes in the demand conditions regarding their statistic relevance on leverage's changes. *GenEconOutlook, AccessPubFin* and *CreditHist* do not reveal any impact on *DebtoAssets* for both Unconstrained and Constrained SMEs sub-samples, whereas in the baseline model (3) only *GenEconOutlook* and *AccessPubFin* were statistically insignificant. Hence, only *OwnCapital* hold its negative impact on changes in leverage for both sub-samples, at 1% significance level. When comparing its average marginal effect with the baseline model, it is possible to conclude that *OwnCapital* has a bigger impact on Unconstrained SMEs, but smaller in the Constrained sub-sample. Namely, the improvement of *OwnCapital* decrease by 5,8% the probability of an increase in *DebtoAssets* for Unconstrained SMEs, while the probability of an increase in leverage for Constrained SMEs is only 2,9%.

Considering the supply variables and their impact on *BankLoan* capital structure variable, Unconstrained SMEs keep the same relevant variables as the baseline model (4) in explaining the impact on *BankLoan*, i.e. *IntRate, FeesandComiss, LoanSize* and *LoanMat*. *Collat* and *OtherCond* are once again excluded, given their statistical irrelevance. Moreover, keeping the same impact signs on bank loans, their average marginal effects compared to the baseline model (4) reveal that *IntRate* and *FeesandComiss* have a higher impact and *LoanSize* and *LoanMat* a smaller impact for Unconstrained SMEs. Namely, the increase of *IntRate*, *LoanSize* or *LoanMat* increases the probability of an increase in *BankLoans* by 5,8%, 4% and 6,5%, respectively. An increase of *FeesandComiss* decreases the probability of an increase in leverage by 3,4%.

On the other hand, Constrained SMEs reveal that changes in *BankLoan* are influenced by *LoanSize*, *Loan Mat* and *Collat*, excluding *IntRate, FeesandComiss* and *OtherCond*, given their statistical irrelevance. Even though the supply variables statistically relevant in explaining the dependent variable differ from the base line model (4), the ones in common, i.e. *LoanSize* and *LoanMat* keep the same impact signs. Moreover, when comparing their average marginal effect with the baseline model*, LoanSize* and *LoanMat* reveal a higher impact for Constrained SMEs. Specifically, an increase of *LoanSize* or *LoanMat* increases the probability of a positive change in *BankLoan* by 11,6% and 11,7%, respectively. *Collat* reveal to have also a positive impact of 8% on the same probability.

Hence, after analyzing Table VI, it is possible to conclude that hypothesis 3 raised in this dissertation is validated. For the sample available in SAFE, the impact of the access to external finance by SMEs in Europe differs if they are constrained or unconstrained. Regarding the demand conditions representing the access to finance and influence leverage structures,

improvements on *OwnCapital*, the only statistical significant variable, has its major effect on Unconstrained firms leverage variations when compared to the baseline model (3). Nevertheless, when looking at supply variables and taking into consideration the ones in common between the Unconstrained and Constrained SMEs sub-samples, *LoanSize* and *LoanMat* increases have a bigger impact on Constrained firms, when compared to the baseline model (4).

Table VI

Regressions results based on success on external finance applications: average marginal effects

Table VI reports the probit regression average marginal effects resulting from a sample split based on *UnconstDebt* variable. If SMEs succeed in their application to external sources they are classified as unconstrained SMEs, whereas if the failed in their application they are considered constrained SMEs. Both regressions, *DebtoAssets* and *BankLoan*, on access to external finance variables are presented as well as their correspondent base line regressions, (3) and (4), respectively. Even though the control variables are not reported, they were considered in the regressions, and they are all presented in Appendix 8.2. For the sake of simplicity, this table does not report the probit regression coefficients (that only indicate the direction of the average effect), the constant, the pseudo r-squared and the significance of the whole regression (Wald chi-squared). The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**DebtoAssets**			**BankLoan**		
	Unconstrained SMEs	Constrained SMEs	(3)	Unconstrained SMEs	Constrained SMEs	(4)
GenEconOutlook	(0,0169)	(0,0011)	(0,0002)			
AccessPubFin	(0,0044)	0,0027	0,0032			
OwnCapital	(0,0580)***	(0,0286)***	(0,0411)***			
CreditHist	0,0045	0,0007	0,0136**			
IntRate				0,0577**	0,0373	0,0453**
FeesandComiss				(0,0343)*	0,0258	(0,0308)*
LoanSize				0,0400**	0,1164***	0,0756***
LoanMat				0,0646**	0,1172**	0,0891***
Collat				(0,0203)	0,0802**	(0,0110)
OtherCond				(0,0030)	(0,0013)	(0,0303)
Observations	5279	11637	16916	2953	939	3893

5. Robustness

In order to test the accuracy of the conclusions drawn above, different factors were taken into consideration. Hence through different scenarios, we aim to test if there are significant differences in the regression results and consequently in the inferences made about the access to finance impact on changes on capital structures.

5.1. SMEs dimension analysis

The database used in this dissertation – the SAFE questionnaire – has its focus on small and medium enterprises. Nevertheless, there are a small proportion of firms that are considered large, i.e. 250 or more employees. We believe this is a measure of control used by the questionnaire, but that will be disregarded as a measure of robustness.

In order to consider this, *NoLarge* variable was generated, assuming "1" if the categorical variable size assumes "Micro", "Small", or "Medium"; and "0" if size is "Large". Hence, based on *NoLarge* variable a new sample was considered, i.e. excluding large firms from the sample.

Considering the results of this alteration in the sample composition (Table VII), demand conditions and their impact on *DebtoAssets* remained unchanged. *GenEconOutlook* and *AccessPubFin*, remaining statistically insignificant, do not impact changes in debt. On the other hand, *OwnCapital* and *CreditHist* persist statistically relevant at 1% and 5%, respectively. Considering their impact signs, which remained the same, it is possible to conclude that the new sample, excluding the large firms, revealed a higher impact on *DebtoAssets* changes. Namely, the probability of SMEs increase their *DebtoAssets* is 4,4% for firms that improved their *OwnCapital* and 1,6% for firms that improved their *CreditHist*, holding the remaining explanatory variables constant. Hence, the hypothesis 1, item (iii) and (iv) are still validated.

However, when taking into consideration the supply side variables and their relation with changes in *BankLoan*, there is a change in the relevance of explanatory variables. *Collat* and *OtherCond* continue statistically irrelevant, while *FeesandComiss* become statistically irrelevant when excluding large firms from the sample. Nonetheless, *IntRate, LoanSize* and *LoanMat*, which hold their positive impact, reveal a higher positive impact on leverage changes. Specifically, an increase of *IntRate, LoanSize* and *LoanMat* increase by 4,9%, 7,8% and 10,3% the probability of an increase in *BankLoan*, respectively and holing everything else constant. Once again, *IntRate* having a positive relevant impact on leverage changes does not seem relevant for the present dissertation, becoming again contradictory to the hypothesis 2, item (i) raised in section 1.3. Yet, *LoanSize* and *LoanMat* still support hypothesis 2 raised in this

dissertation, specifically, item (iii) and (iv).

Therefore, it is possible to conclude that the impact of the access to external finance on SMEs' capital structure differs when excluding the largest firms in the sample. When considering the demand conditions, both variables remain statistically relevant, increasing their impact for the *NoLarge* firms sub-sample. Regarding the supply side variables that remain relevant between the sample with and without large firms, *LoanSize* and *LoanMat* reveal a larger impact for the later version of the sample.

Table VII
Regression results without largest firms: probit and average marginal effects

Table VII reports the probit regression results from a sample split based on *NoLarge* variable. If the categorical variable size assumes "Micro", "Small" or "Medium", *NoLarge* assumes value "1" and SMEs are considered in the regression, whereas if size assumes "Large", SMEs are disregarded from the regression. Both regressions*, DebtoAssets* and *BankLoan*, on access to external finance variables are presented as well as their correspondent base line regressions, (3) and (4), respectively. The average marginal effects are also presented, allowing a correct interpretation of the variables' coefficients. For the sake of simplicity, this table does not display the control variables considered in the regressions, but they are all presented in Appendix 9.1. The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**Probit**				**Average Marginal Effects**			
	DebtoAssets	(3)	BankLoan	(4)	DebtoAssets	(3)	BankLoan	(4)
GenEconOutlook	(0,0241)	(0,0008)			(0,0053)	(0,0002)		
AccessPubFin	0,0090	0,0142			0,0020	0,0032		
OwnCapital	(0,1991)***	(0,1852)***			(0,0438)***	(0,0411)***		
CreditHist	0,0740**	0,0615**			0,0163**	0,0136**		
IntRate			0,1382**	0,1295**			0,0490**	0,0453**
FeesandComiss			(0,0889)	(-0,0881)*			(0,0315)	(0,0308)*
LoanSize			0,2201***	0,2164***			0,0780***	0,0756***
LoanMat			0,2911***	0,2551***			0,1032***	0,0891***
Collat			(0,0421)	(0,0314)			(0,0149)	(0,0110)
OtherCond			(0,0946)	(0,0867)			(0,0335)	(0,0303)
Constant	(1,2308)***	(1,2366)***	0,0934	0,1041	-	-	-	-
Observations	15 324	16 916	3 405	3 893	15 324	16 916	3 405	3893
Pseudo R2	0,0277	0,0282	0,0368	0,0371	-	-	-	-
Wald chi2	337,06***	382,39***	156,73***	178,28***	-	-	-	-

5.2. Access to external finance analysis

The third hypothesis underling this dissertation aims to assess how differently the access to external finance influences capital structure of constrained and unconstrained SMEs. Based on the database available, section 4.4. analyzes SMEs constraints throughout the success on firms' applications to external finance. However, the survey offers another more subjective approach to define constraints, namely, firms' self-assessment regarding the access to finance as the most pressing problem. When considering it, it does not take into account an objective factor as the success on external finance applications but the level of financing problem perceived by the firms surveyed.

Hence, as a measure of robustness, *AccesstoFin* was generated as a new definition of SMEs constraints. Considering firms selecting from 1 to 10, "Access to Finance" as the most pressing problem, *AccesstoFin* splits the sample into two sub-samples: (i) Non-Pressed SMEs, if firms select "Access to Finance" as their most pressing problem between 1 and 5; (ii) Pressed SMEs if firms select "Access to Finance" as the most pressing problem between 6 and 10.

When looking at the results of the sample divided by the *AccesstoFin* variable (Table VIII), differences are observable regarding the demand conditions and their statistic relevance between Non-pressed and Pressed SMEs. While for Non-pressed firms, *GenEconOutlook* and *AccessPubFin* do not reveal any impact on *DebtoAssets*, going in line with the baseline model (3), for Pressed firms also *CreditHist* does not impact *DebtoAssets* given its statistical irrelevance. Thus, only *OwnCapital* hold its negative impact on changes in leverage for both sub-samples, at 1% significance level. Analyzing their average marginal effect, it is observable that even though *OwnCapital* has a lower impact for Non-pressed firms than for Pressed firms, it has a lower impact for both sub-samples when compared to the baseline model (3). Namely, the improvement of *OwnCapital* decrease by 2,5% for Non-pressed firms, and by 2,2% for Pressed firms, the probability of an increase in *DebtoAssets*.

Yet, *CreditHist* also holds its (positive) impact on changes in leverage for Non-pressed firms, at 1% significance level. When comparing its average marginal effect with the baseline model (3) it is possible to conclude that *CreditHist* has a bigger impact on Non-pressed firms. Specifically, the improvement of *CreditHist* increases by 2,2% the probability of an increase in *DebtoAssets*.

Taking into consideration the supply side variables and their impact on *BankLoan*, Non-pressed firms do not have any relevant variables that could explain changes in this form of leverage. On the other hand, Pressed SMEs reveal that changes in *BankLoan* are influenced by *IntRate*,

LoanSize and *LoanMat*, excluding *FeesandComiss, Collat* and *OtherCond* given their statistical irrelevance. Even though supply variables statistical relevant in explaining *BankLoan* changes differ from the baseline model (4), the ones in common (*IntRate, LoanSize* and *LoanMat*) hold the same positive impact signs. Furthermore, when comparing their average marginal effect with the baseline model, *IntRate* reveals the same impact while *LoanSize* and *LoanMat* reveal a higher impact for Pressed SMEs. Namely, an increase of *LoanSize* or *LoanMat* increases the probability of *BankLoan* changes by 11% and 11,4%, respectively.

Hence, throughout this analysis, it is also possible to validate hypothesis 3. Regarding the demand conditions influencing leverage structures, the improvements on *OwnCapital*, the only common statistical significant variable between sub-samples, has a lower impact for Non-pressed and Pressed firms when compared with the baseline model (3). Yet, there is still a lower impact for *DebtoAssets* changes in Non-pressed firms than in Pressed firms. Lastly, when looking at supply variables, there are no common statistical relevant variables between the two subsamples. However, taking a look at Pressed SMEs, *LoanSize* and *LoanMat* increases have a bigger impact, when compared to the baseline model (4).

Table VIII

Regressions results based on access to finance as a pressing problem: average marginal effects

Table VIII reports the probit regression average marginal effects resulting from a sample split based on *AccesstoFin* variable. If firms select "Access to Finance" as their most pressing problem between 1 and 5 they are classified as Non-Pressed SMEs, whereas if they selected between 6 and 10 they are considered Pressed SMEs. Both regressions, DebtoAssets and BankLoan, on access to external finance variables are presented as well as their correspondent base line regressions, (3) and (4), respectively. Even though the control variables are not reported, they were considered in the regressions, and they are all presented in Appendix 9.2. For the sake of simplicity, this table does not report the probit regression coefficients (that only indicate the direction of the average effect), the constant, the pseudo r-squared and the significance of the whole regression (Wald chi-squared). The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**DebtoAssets**			**BankLoan**		
	Non-Pressed SMEs	Pressed SMEs	(3)	Non-Pressed SMEs	Pressed SMEs	(4)
GenEconOutlook	0,0082	(0,0179)	(0,0002)			
AccessPubFin	(0,0058)	0,0075	0,0032			
OwnCapital	(0,0251)***	(0,0377)***	(0,0411)***			
CreditHist	0,0216***	(0,0221)	0,0136**			
IntRate				0,0452	0,0454*	0,0453**
FeesandComiss				(0,0365)	(0,0174)	(0,0308)*
LoanSize				0,0369	0,1102***	0,0756***
LoanMat				0,0573	0,1144***	0,0891***
Collat				0,0097	(0,0162)	(0,0110)
OtherCond				(0,0197)	(0,0294)	(0,0303)
Observations	10 895	6 009	16 916	1 711	2 182	3 893

5.3. Country analysis

So far the location of SMEs has not been considered in the empirical results analysis. However, as mentioned by Titman (2002), more than considering debt's costs and benefits, the market conditions and its repercussions on firms financing choices are also a major concern. Hence, taking into account the current crisis, how it has affected several countries and how it can be a constraint for SMEs, European countries and their macro conditions seemed relevant to analyze.

Therefore, a third robustness test considering the countries mainly affected by the crisis where SMEs are located was performed. In order to consider this, *CrisisCountries* variable was generated, assuming "1" if the categorical variable country assumes "Greece", "Italy", "Ireland", "Portugal" or "Spain"; and "0" otherwise. Consequently, based on this new variable the sample was split into two sub-samples: (i) Crisis countries, and (ii) Non-crisis countries.

Table IX reports the output from applying the baseline models (3) and (4) to these sub-sample groups. Hence, analyzing the results presented, demand conditions and their impact on *DebtoAssets* remained the same when compared to baseline model (3). *GenEconOutlook* and *AccessPubFin*, persisting statistically insignificant for both crisis and non-crisis countries, do not impact changes in debt. On the other hand, *OwnCapital* continue statistically relevant for crisis countries at 1% and for non-crisis countries at 5%. Holding its negative impact on changes in leverage for both sub-samples, its average marginal effects reveal that *OwnCapital* has similar impact on crisis countries and non-crisis countries when compared to the baseline model. Namely, the improvement of *OwnCapital* decreases the probability of an increase in *DebtoAssets* by 4,2% and 4% for crisis and non-crisis countries, respectively.

Nevertheless, *CreditHist* also holds its (positive) impact on changes in leverage for non-crisis countries firms, at 1% significance level. When comparing its average marginal effect with the baseline model (3) it is possible to conclude that *CreditHist* has a bigger impact on non-crisis. Explicitly, the probability of an increase in *DebtoAssets* increases by 1,8% with the improvement of *CreditHist*.

When considering the supply side variables and its impact on *BankLoan* changes, there is a modification in the relevance of the explanatory variables. Regarding the sub-sample crisis countries, not only *Collat* and *OtherCond* continue statistically irrelevant, but also *IntRate* and *FeesandComiss* become statistically irrelevant. Nevertheless, *LoanSize* and *LoanMat*, holding a positive impact, reveal a higher and lower positive impact on leverage changes, respectively, when compared to the baseline model (4). Namely, an increase of *LoanSize* and *LoanMat*

increase by 10,6% and 8,4% the probability of an increase in *BankLoan*, respectively and holding everything else constant.

Considering the Non-crisis countries, *Collat, OtherCond* and *FeesandComiss* are also not relevant when trying to explain changes in *BankLoan*. On the other hand, *IntRate, LoanSize* and *LoanMat* hold the same impact sign, at 1% significance level, when compared with the baseline model (4). Additionally, when analyzing their average marginal effects, *IntRate* and *LoanMat* reveal a higher impact on *BankLoan* compared with the baseline model, while *LoanSize* reveals a lower impact. Specifically, an increase of *IntRate, LoanMat* and *LoanSize* increases the probability of a positive change in *BankLoan* by 8,1%, 9,1% and 6,1%, respectively.

Once again, after analyzing Table IX, it is possible to conclude that hypothesis 3 is validated. When considering countries affected by the crisis, the impact of the access to external finance by SMEs in Europe differs. Regarding the demand conditions, even though *OwnCapital* (the only statistical significant variable for both sub-samples) has very similar impacts across samples, it has its major effect on crisis countries' leverage variations when compared to the baseline model (3). Nevertheless, when looking at supply variables and taking into consideration the ones in common between sub-samples, *LoanSize* increases has a bigger impact on crisis countries while *LoanMat* increases has a bigger impact on non-crisis firms, when compared to the baseline model (4).

Table IX

Regressions results based on impact of crisis on European countries: average marginal effects

Table IX reports the probit regression average marginal effects resulting from a sample split based on *CrisisCountries* variable. If the categorical variable country assumes "Greece", "Italy", "Ireland", "Portugal" or "Spain", *CrisisCountries* assumes value "1" and SMEs are included in Crisis countries sub-sample. If the country does not correspond to the specific countries, SMEs are included in Non-crisis countries sub-sample. Both regressions, *DebtoAssets* and *BankLoan*, on access to external finance variables are presented as well as their correspondent base line regressions, (3) and (4), respectively. Even though the control variables are not reported, they were considered in the regressions, and they are all presented in Appendix 9.3. For the sake of simplicity, this table does not report the probit regression coefficients (that only indicate the direction of the average effect), the constant, the pseudo r-squared and the significance of the whole regression (Wald chi-squared). The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**DebtoAssets**			**BankLoan**		
	Crisis countries	Non-crisis countries	(3)	Crisis countries	Non-crisis countries	(4)
GenEconOutlook	(0,0204)	0,0038	(0,0002)			
AccessPubFin	(0,0355)	0,0197	0,0032			
OwnCapital	(0,0417)**	(0,0404)***	(0,0411)***			
CreditHist	(0,0054)	0,0184***	0,0136**			
IntRate				(0,0279)	0,0810***	0,0453**
FeesandComiss				(0,0121)	(0,0336)	(0,0308)*
LoanSize				0,1056***	0,0614***	0,0756***
LoanMat				0,0841*	0,0913***	0,0891***
Collat				(0,0053)	(0,0140)	(0,0110)
OtherCond				(0,0296)	(0,0271)	(0,0303)
Observations	4 011	12 903	16 916	1 203	2 690	3 893

6. Conclusions

This dissertation examines the impact of the access to external financing on the capital structure of firms, namely SMEs in Europe. Based on the SAFE database from ECB, it tests whether firms, which have access to supply of debt (supply side) and have characteristics that raises the net benefits of debt (demand side), become more leveraged. Moreover, it also examines whether the impact of access to external finance on capital structures differs between unconstrained and constrained SMEs.

When looking at the regression outputs, it is understandable that regarding the demand conditions that could influence changes in leverage, improvements in SMEs own capital and in their credit history have the major impact. Hence improvements in own capital lead to decreases in the leverage levels, while improvements in credit history increase the leverage levels. On the other hand, when considering the supply side, capital structure changes are mainly explained for changes in fees and commissions, loan size and loan maturity. Thus, an increase of fees and commissions leads to decreases in leverage, while increases of loan size and maturity allow SMEs to increase their leverage. Nevertheless, after controlling for the SMEs dimension, there is only one factor of the demand conditions that explains changes in capital structure, i.e. own capital. Considering the supply side only loan size and loan maturity remain relevant, but with a larger impact, when explaining changes in capital structure of SMEs.

Additionally, when taking into consideration constraints faced by SMEs, defined as their success/failure when applying for external financing, it validates the third hypothesis of this dissertation. Considering the demand conditions, own capital improvements decrease more the unconstrained firms' capital leverage levels than constrained firms. On the other hand, regarding the supply variables, increases in loan size and loan maturity have a major positive impact on constrained firms' capital structure than unconstrained. Hence, this is consistent with the main findings of Campello et al (2010), who argue that constrained firms tend to use internal funding to deal with financial crises, and tend to get credit from the bank, preparing for limited access to credit in the future.

However, when controlling for constraints, two additional approaches were taken, (i) Access to Finance as a limiting factor and (ii) Crisis countries analysis. Regarding the access to finance, as a more subjective variable, the demand conditions, i.e. the own capital improvements have a higher negative impact on leverage changes for pressed firms (firms that find access to finance an extremely limiting factor) than for non-pressed firms. While for the supply variables no conclusion between sub-samples could be taken. Concerning the countries mainly affected by

the crisis, improvements in the own capital of SMEs have very similar impacts between the two groups. For the supply side, loan size has its major positive impact on crisis countries, while loan maturity does it for non-crisis countries.

Nonetheless, it is possible to conclude that regardless the measure of constraints used, demand and supply factors representing access to external finance differ between the constrained and unconstrained sub-sample, when analyzing changes in their leverage ratios. Hence, as mentioned by Rajan and Zingales (1995), the outcomes support the complex interaction of factors and firm characteristics that explain firms' capital structures.

7. Limitations and Future Research

7.1. Limitations

The present dissertation uses as database the SAFE survey. Exploiting the survey, it offers a different view regarding how access to external finance impacts capital structures for such a difficult topic regarding information availability, as it is for SMEs. However, it measures managers' opinions. Considering what the owner of the firms believes it is the right answer may have some distortions from reality. Hence, data from a survey is usually associated with potential biases and measurement problems, which can distort the results.

Additionally, the survey conducts an array of questions that try to approach how is the access to external finance for SMEs. Selecting the most appropriate range of questions is somehow limitative. Even though the present dissertation considers the more objective questions, disregarding the more subjective, it is possible that selecting different questions to generate the same variables would lead to different results.

Lastly, the present dissertation had only access to one year of the survey (2015, first wave). Even though it compiles a lot of statistical information about Small and Medium Enterprises among the 28 European countries in each survey's wave, it is not possible to perform a temporal analysis. Moreover, besides not having access to the remaining datasets, the SMEs range that is surveyed changes every year, which limits the former analysis.

7.2. Future Research

Considering the limitations just described, the use of the survey could be improved. Besides selecting different questions to represent similar variables, the use of continuous variables would probably improve the explanatory of the model. Even though we do not have access to the SMEs identity, there is a code associated to each one that allows us to understand the industry level in which they are inserted. Considering also some general questions (e.g. country, number of employees, profitability, etc.) and replicating it with continuous variables through a different data source would control for the subjective biases underlying the answers to the questions.

Nevertheless, the research could also be improved if data for more years was considered. Having comparable data for both crisis and recovering period would be the ideal. However, if the SMEs surveyed change, considering the two waves for each year, could already improve the conclusions.

8. References

Articles, Books, Working Papers and Dissertations consulted

Auerbach, A. J. (1985). Real Determinants of Corporate Leverage. In *Corporate Capital Structures in the United States* (pp. 301-324). Chicago, Illinois: University of Chicago Press.

Baker, M., and Wurgler, J. (2002). Market Timing and Capital Structure. *The Journal of Finance*, 57(1), 1-32.

Bradley, Michael, Gregg A. Jarrell, and E. Kim. (1984). On the existence of an optimal capital structure: Theory and evidence. *The Journal of Finance*, 39(3), 857-878.

Campello M, Graham J. R., and Harvey C. R. (2010). The Real Effects of Financial Constraints: Evidence from a Financial Crisis. *Journal of Financial Economics*, 97(3), 470- 487.

DeAngelo, H. and Masulis, R. W. (1980). Optimal Capital Structure under Corporate and Personal Taxation. *Journal of Financial Economics*, 8(1), 3-29.

Easterbrook, F. H. (1984). Two Agency-Cost Explanations of Dividends. The American Economic Review, 74(4), 650-659.

Fama, E. R., and French, K. R. (2002). Testing Trade-off and Pecking Order Predictions About Dividends and Debt. *Review of Financial Studies,* 15(1), 1-33.

Fama, E. F., and Miller, M. H. (1972). *The Theory of Finance*. New York, NY: Holt, Rinehart and Winston.

Faulkender, M., and Petersen M. A. (2005). Does the source of capital affect capital structure?. *Review of Financial Studies*, 19(1), 45-79.

Ferrando, A., and Griesshaber, N. (2011). Financing Obstacles Among Euro Area Firms: Who Suffers the Most?. *ECB Working Paper*, 1293. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1757728##

Frank, M. Z., and Goyal, V. K. (2003). Testing the Pecking Order Theory of Capital Structure. *Journal of Financial Economics*, 67(2), 217-248.

Graham, J. R. (2000). How Big Are the Tax Benefits of Debt?. *The Journal of Finance*, 55(5), 1901–1941.

Harris, M., and Raviv, A. (1991). The Theory of Capital Structure. *The Journal of Finance*, 46(1), 297-355.

Holton, S., Lawless, M., and McCann, F. (2012). Firm Credit in Europe: A Tale of Three Crises. *Central Bank of Ireland*. Retrieved from http://www.centralbank.ie/publications/documents/04rt12.pdf

Jalilvand, A., and Harris, R. S. (1984). Corporate Behavior in Adjusting to Capital Structure and Dividend Targets: An Econometric Study. *The Journal of Finance*, 39(1), 127-145.

Jensen, M. C., and Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.

Jensen, M. C. (1986). Agency Cost of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review*, 76(2), 323-329.

Kester, W. C. (1986). Capital and Ownership Structure: A Comparison of United States and Japanese Manufacturing Corporations. *Financial Management*, 15(1), 5-16.

Korajczyk, R. A., and Levy, A. (2003). Capital Structure Choice: Macroeconomic Conditions and Financial Constraints. *Journal of Financial Economics*, 68(1), 75-109.

Leary, M. T., and Roberts, M. R. (2005). Do Firms Rebalance Their Capital Structures?. *Journal of Finance*, 60(6), 2575-2620.

Levy, M. T. (2009). Bank Loan Supply, Lender Choice, and Corporate Capital Structure. *The Journal of Finance*, 64(3), 1143-1185

Long, M. S., and Malitz, I. B. (1985). Investment Patterns and Financial Leverage. In *Corporate Capital Structures in the United States* (pp. 325-352). Chicago, Illinois: University of Chicago Press.

Marsh, P. (1982). The Choice Between Equity and Debt: An Empirical Study. *The Journal of Finance*, 37(1), 121-144.

Miller, M. H., and Scholes, M. S. (1978). Dividends and Taxes. *Journal of Financial Economics*, 6(4), 333-364.

Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147-175.

Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal of Finance*, 39(3), 575-592.

Myers, S. (2003). Financing of corporations. *Handbooks of the Economics of Finance*, 1(A), 215-253.

Miller, M. H., and Modigliani, F. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, 48(3), 261-297.

Modigliani, F., and Miller, M. (1963). Corporate Income Taxes and the Cost of Capital: a Correction. *The American Economic Review*, 53(3), 433-443.

Majluf, N. S., and Myers, S. C. (1984). Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have. *Journal of Financial Economics*, 13(2), 187-221.

Opler, T. C., and Titman, S. (1994). Financial Distress and Corporate Performance. *The Journal of Finance*, 49(3), 1015-1040.

Rajan, R. G., and Zingales, L. (1995). What Do We Know about Capital Structure? Some Evidence from International Data. *The Journal of Finance*, 50(5), 1421-1460.

Shyam-Sunder, L., and Myers, S.C. (1999). Testing Static Tradeoff against Pecking Order Models of Capital Structure. *Journal of Financial Economics*, 51(2), 219-244.

Stiglitz, J. E., and Weiss, A. (1981). Credit Rationing in Markets with Imperfect Information. *The American Economic Review*, 71(3), 393-410.

Taggart, R. A. (1977). A Model of Corporate Financing Decisions. *The Journal of Finance*, 32(5), 1467-1484.

Titman, S., and Wessels, R. (1988). The Determinants of Capital Structure Choice. *The Journal of Finance*, 43(1), 1-19.

Titman, S. (2002). The Modigliani and Miller Theorem and the Integration of Financial Markets. *Financial Management*, 31(1), 101-115.

Websites consulted

Survey on Access to finance of enterprises (SAFE). Retrieved November 1, 2016, from https://www.ecb.europa.eu/stats/money/surveys/sme/html/index.en.html

9. Appendices

Appendix 1: Variables used to assess the impact of access to external finance on SMEs' capital structure

Appendix 1 reports the variables defined for the present dissertation, based on the database used (SAFE questionnaire). The survey conducts an array of questions, which approach both the supply and demand factors affecting the SMEs' access to external finance. Having it in consideration, several questions were selected and adapted into either binary or categorical variables, depending on the answers given by the SMEs surveyed. Besides the dependent variables representing changes in leverage (*DebtoAssets* and *BankLoan*), both the demand side (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist*) and the supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat* and *OtherCond*) variables were defined. Control variables are included, i.e. *Country, Firm Industry, Ownership, Maturity, Size, UnconsDebt, AccesstoFin, CrisisCountries, NoLarge* and a set of variables considered influential on capital structure of firms by literature (*Profit, FixedInvest, IWC*).

Variable	Question	Code
Panel A: Dependent variables		
DebtoAssets	Q2j: Have debt compared to assets decreased, remained unchanged or increased over the past 6 months?	Dichotomous variable 1 = Increased 0 = Decreased, remained unchanged or not applicable because the firm has not debt
BankLoan	Q4d: Have you taken out a new loan or renewed such loan in the past 6 months?	Dichotomous variable 1 = Used in the past 6 months 0 = Did not use in the past 6 months or it is not relevant for the enterprise
Panel B: Explanatory variables		
Demand side		
GenEconOutlook	Q11a: For general economic outlook, insofar as it affects the availability of external financing, would you say that they have improved, remained unchanged or deteriorated over the past 6 months?	Dichotomous variable 1 = Improved 0 = Deteriorated, remained unchanged or do not know

AccessPubFin	Q11b: For access to public financial support, would you say that they have improved, remained unchanged or deteriorated over the past 6 months?	Dichotomous variable 1 = Improved 0 = Deteriorated, remained unchanged or do not know
OwnCapital	Q11d: For your enterprise's own capital, would you say that they have improved, remained unchanged or deteriorated over the past 6 months?	Dichotomous variable 1 = Improved 0 = Deteriorated, remained unchanged or do not know
CreditHist	Q11e: For your enterprise's credit history, would you say that they have improved, remained unchanged or deteriorated over the past 6 months?	Dichotomous variable 1 = Improved 0 = Deteriorated, remained unchanged or do not know
Supply Side		
IntRate	Q10a: Please indicate whether level of interest rates increased, remained unchanged or decreased over the past 6 months?	Dichotomous variable 1 = Increased 0 = Decreased or remained unchanged
FeesandComiss	Q10b: Please indicate whether level of the cost of financing other than interest rates, such as charges, fees, commissions, increased, remained unchanged or decreased over the past 6 months?	Dichotomous variable 1 = Increased 0 = Decreased or remained unchanged
LoanSize	Q10c: Please indicate whether available size of loan or credit line increased, remained unchanged or decreased over the past 6 months?	Dichotomous variable 1 = Increased 0 = Decreased or remained unchanged
LoanMat	Q10d: Please indicate whether available maturity of loan increased, remained unchanged or decreased over the past 6 months?	Dichotomous variable 1 = Increased 0 = Decreased or remained unchanged
Collat	Q10e: Please indicate whether collateral requirements increased, remained unchanged or decreased over the past 6 months?	Dichotomous variable 1 = Increased 0 = Decreased or remained unchanged
OtherCond	Q10f: Please indicate whether required guarantees, information requirements, procedures, time required for loan approval or loan covenants increased, remained unchanged or decreased over the past 6 months?	Dichotomous variable 1 = Increased 0 = Decreased or remained unchanged
Panel C: Control variables		
Country	It does not have a question. The variable represents only the country to which the firms belongs to.	Nominal variable 1= France

		2 = Germany 3 = Italy 4 = Portugal 5 = United Kingdom 6 = Remaining countries from Eu28
Industry	D3: What is the main activity of your enterprise?	Nominal variable 1 = Industry (Mining, Manufacturing) 2 = Construction 3 = Trade (Wholesale, Retail Trade) 4 = Services (Transport, Real State, Other services) 5 = Other Activities
Ownership	D6: Who owns the larger stake in your enterprise?	Nominal variable 1 = Public Shareholders 2 = Family or entrepreneurs (more than one owner) 3 = Other enterprises or business associates 4 = Venture Capital enterprises or business angels 5 = One owner only 6 = Other owner types
Maturity	D5: In which year was your enterprise first registered?	Nominal variable 1 = Old 2 = Middle 3 = Young 4 = Startup 6 = Other age
Size	D1: How many people does your enterprise currently employ either full or part time in at all its locations?	Nominal variable 1 = Micro (1-9 employees) 2 = Small (10-49 employees) 3 = Medio (50-249 employees) 4 = Large (250+ employees)

Profit	Q2e: Have profit (net income after taxes) decreased, remained unchanged or increased over the past 6 months?	Dichotomous variable 1 = Increased 0 = Decreased or remained unchanged
FixedInvest	Q2g: Have fixed investment (investment in property, plant, machinery or equipment) decreased, remained unchanged or increased over the past 6 months?	Dichotomous variable 1 = Increased 0 = Decreased or remained unchanged
IWC	Q2h: Have inventories and working capital decreased, remained unchanged or increased over the past 6 months?	Dichotomous variable 1 = Increased 0 = Decreased or remained unchanged
UnconstDebt	Q7b: If you applied and tried to negotiate for this type of financing, i.e. (i) bank loan, (ii) credit line, bank overdraft or credit line overdraft, (iii) trade credit or (iv) other external finance, over the past 6 months, what was the outcome?	Dichotomous variable 1 = Applied and received everything 0 = Applied and received 75% and above, applied and received below 75%, applied but refused because cost too high applied but was rejected, or the application is still pending
AccesstoFin	Q0: How important have the following problems (Access to Finance) been for your enterprise in the past 6 months? Please answer on a scale of 1-10, where 1 means not it is not at all important and 10 means it is extremely important.	Dichotomous variable 1 = SMEs selected Access to Finance as their most pressing problem between 1 and 5 0 = SMEs selected Access to Finance as their most pressing problem between 6 and 10
CrisisCountries	It does not have a question. The variable represents countries that were mostly affected by the crisis in Europe.	Dichotomous variable 1 = Greece, Italy, Ireland, Portugal and Spain 0 = Remaining European countries considered in the survey
NoLarge	It does not have any question. The variables, based on the categorical variable size, distinguish effectively Small and Medium Enterprises (SMEs) and the large firms considered in the survey.	Dichotomous variable 1 = Micro, Small or Medium 0 = Large

Appendix 2: General Summary Statistics

Appendix 2 reports the descriptive statistics for the variables used in the regression analysis, aggregated into panels. Panel A presents the changes of capital structure proxies for SMES in Europe. Panel B contains the variables that try to explain the impact of access to external finance on capital structure, both the supply and demand side. Panel C includes also the control variables that are not reported in Table I. The summary statistics are presented as follows: number of observations, mean, standard deviation, minimum and maximum values, kurtosis, skewness, and quartiles 25, 50, 75 and 90.

Variables	Obs.	Mean	St. Dev.	Min	Max	Kurtosis	Skewness	p25	p50	p75	p90
Panel A: Capital Structure Variables											
DebtoAssets	16 916	0,1452	0,3524	0	1	5,0547	2,0136	0	0	0	1
BankLoan	8 176	0,4267	0,4946	0	1	1,0877	0,2963	0	0	1	1
Panel B: Access to External Finance											
GenEconOutlook	16 916	0,2231	0,4163	0	1	2,7694	1,3302	0	0	0	1
AccessPubFin	16 916	0,0701	0,2552	0	1	12,3504	3,3690	0	0	0	0
OwnCapital	16 916	0,3044	0,4602	0	1	1,7224	0,8499	0	0	1	1
CreditHist	16 916	0,2521	0,4342	0	1	2,3034	1,1417	0	0	1	1
IntRate	4 878	0,1501	0,3572	0	1	4,8405	1,9597	0	0	0	1
FeesandComiss	4 878	0,2798	0,4490	0	1	1,9622	0,9809	0	0	1	1
LoanSize	4 878	0,2386	0,4263	0	1	2,5041	1,2264	0	0	0	1
LoanMat	4 878	0,1015	0,3020	0	1	7,9675	2,6396	0	0	0	1
Collat	4 878	0,2015	0,4012	0	1	3,2147	1,4882	0	0	0	1
OtherCond	4 878	0,2271	0,4190	0	1	2,6964	1,3025	0	0	0	1
Panel C: Control Variables											
Germany	16 916	0,0857	0,2799	0	1	9,7679	2,9611	0	0	0	0
France	16 916	0,0849	0,2788	0	1	9,8646	2,9773	0	0	0	0
Italy	16 916	0,0848	0,2786	0	1	9,8808	2,9801	0	0	0	0
Portugal	16 916	0,0258	0,1585	0	1	36,8246	5,9854	0	0	0	0
UnitedKingdom	16 916	0,0777	0,2678	0	1	10,9482	3,1541	0	0	0	0
Industry	16 916	0,2225	0,4160	0	1	2,7803	1,3343	0	0	0	1

Construction	16 916	0,1061	0,3079	0	1	7,5478	2,5589	0	0	0	1
Trade	16 916	0,2368	0,4251	0	1	2,5339	1,2385	0	0	0	1
Services	16 916	0,3406	0,4739	0	1	1,4527	0,6729	0	0	1	1
OtherActivities	16 916	0,0941	0,2920	0	1	8,7295	2,7806	0	0	0	0
PubShareholdres	16 916	0,0355	0,1850	0	1	26,2301	5,0230	0	0	0	0
Entrepreneurs	16 916	0,3788	0.4851	0	1	1,2496	0,4996	0	0	1	1
OtherFirms	16 916	0,1473	0,3544	0	1	4,9635	1,9909	0	0	0	1
VC	16 916	0,0064	0,0796	0	1	154,6361	12,3950	0	0	0	0
OnlyOwner	16 916	0,3639	0,4811	0	1	1,3200	0,5657	0	0	1	1
OtherOwnerTypes	16 916	0,0682	0,2520	0	1	12,7444	3,4270	0	0	0	0
Old	16 916	0,7915	0,4062	0	1	3,0596	-1,4351	1	1	1	1
Middle	16 916	0,1413	0,3483	0	1	5,2424	2,0597	0	0	0	1
Young	16 916	0,0540	0,2260	0	1	16,5850	3,9478	0	0	0	0
Startup	16 916	0,0120	0,1089	0	1	81,3422	8,9634	0	0	0	0
OtherAge	16 916	0,0012	0,0352	0	1	803,5251	28,3289	0	0	0	0
Micro	16 916	0,3584	0,4795	0	1	1,3490	0,5908	0	0	1	1
Small	16 916	0,2802	0,4491	0	1	1,9581	0,9788	0	0	1	1
Medio	16 916	0,2673	0,4426	0	1	2,1057	1,0515	0	0	1	1
Large	16 916	0,0941	0,2920	0	1	8,7295	2,7802	0	0	0	0
Profit	16 916	0,3441	0,4751	0	1	1,4310	0,6565	0	0	1	1
FixedInvest	16 916	0,2871	0,4524	0	1	1,8862	0,9414	0	0	1	1
IWC	16 916	0,2230	0,4163	0	1	2,7716	1,3310	0	0	0	1

Appendix 3: Summary statistics classified by Country

Appendix 3 presents the number of observations and the mean values according to the SME's country for the change in capital structure proxy (*DebtoAssets* and *BankLoan*) as well as for the access to external finance explanatory variables. Here both variables that are a proxy for the demand side (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist*) and supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat* and *OtherCond*) are presented. The countries presented correspond to the ones with more observations in the study (France, Germany, Italy and United Kingdom), including also Portugal.

Variables	France		Germany		Italy		Portugal		Spain		United Kingdom	
	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean
DebtoAssets	1 437	0,1642	1 449	0,1187	1 435	0,2063	436	0,1307	1238	0,1478	1 315	0,1437
BankLoan	907	0,4322	719	0,4590	799	0,4894	249	0,3614	726	0,4518	496	0,3590
GenEconOutlook	1 437	0,1169	1 449	0,1718	1 435	0,2509	436	0,3807	1238	0,4855	1 315	0,2738
AccessPubFin	1 437	0,0452	1 449	0,0359	1 435	0,0725	436	0,1422	1238	0,1317	1 315	0,0692
OwnCapital	1 437	0,2310	1 449	0,3823	1 435	0,1749	436	0,0803	1238	0,2480	1 315	0,3810
CreditHist	1 437	0,2143	1 449	0,2905	1 435	0,2084	436	0,1812	1238	0,3005	1 315	0,3270
IntRate	558	0,1416	345	0,0957	599	0,2154	159	0,1006	498	0,1406	239	0,0921
FeesandComiss	558	0,3477	345	0,1536	599	0,4057	159	0,3333	498	0,2912	239	0,2427
LoanSize	558	0,2007	345	0,2580	599	0,1853	159	0,1572	498	0,3233	239	0,2469
LoanMat	558	0,0573	345	0,0696	599	0,0985	159	0,1258	498	0,1265	239	0,0962
Collat	558	0,3208	345	0,1652	599	0,1786	159	0,1509	498	0,1586	239	0,1339
OtherCond	558	0,2545	345	0,1768	599	0,1987	159	0,1572	498	0,2470	239	0,1883

Appendix 4: Summary statistics classified by Firm Industry

Appendix 4 describes the number of observations and the mean values according to the firm's industry for the changes in capital structure proxy (*DebtoAssets* and *BankLoan*) as well as for the access to external finance explanatory variables. Here both variables that are a proxy for the demand side (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist*) and supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat and OtherCond*) are presented.

Variables	Industry		Construction		Trade		Services		Other Activities	
	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean
DebtoAssets	3 764	0,1562	1 794	0,1583	4 005	0,1411	5 761	0,1314	1592	0,1652
BankLoan	2046	0,4633	877	0,4230	1896	0,4119	2495	0,3671	862	0,5487
GenEconOutlook	3 764	0,2322	1 794	0,1934	4 005	0,1960	5 761	0,2277	1592	0,2864
AccessPubFin	3 764	0,0786	1 794	0,0736	4 005	0,0579	5 761	0,0706	1592	0,0741
OwnCapital	3 764	0,3217	1 794	0,2882	4 005	0,2831	5 761	0,2956	1592	0,3675
CreditHist	3 764	0,2744	1 794	0,2246	4 005	0,2424	5 761	0,2404	1592	0,2971
IntRate	1 290	0,1473	531	0,1733	1 147	0,1595	1 335	0,1581	575	0,0974
FeesandComiss	1 290	0,2496	531	0,3239	1 147	0,3235	1 335	0,3041	575	0,1635
LoanSize	1 290	0,2411	531	0,2185	1 147	0,2276	1 335	0,2172	575	0,3235
LoanMat	1 290	0,1000	531	0,0885	1 147	0,0924	1 335	0,0906	575	0,1600
Collat	1 290	0,1822	531	0,2429	1 147	0,2153	1 335	0,2202	575	0,1357
OtherCond	1 290	0,1822	531	0,2580	1 147	0,2520	1 335	0,2502	575	0,1965

Appendix 5: Summary statistics classified by Size

Appendix 5 describes the number of observations and the mean values according to the size of the firm, for the changes in capital structure proxy (*DebtoAssets* and *BankLoan*) as well as for the access to external finance explanatory variables. Here both variables that are a proxy for the demand side (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist*) and supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat and OtherCond*) are presented.

Variables	Micro		Small		Medium		Large	
	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean
DebtoAssets	6 062	0,1354	4 740	0,1392	4 522	0,1577	1 592	0,1652
BankLoan	2 572	0,3087	2 366	0,4214	2 376	0,5156	862	0,5487
GenEconOutlook	6 062	0,1826	4 740	0,2213	4 522	0,2570	1 592	0,2864
AccessPubFin	6 062	0,0592	4 740	0,0736	4 522	0,0794	1 592	0,0741
OwnCapital	6 062	0,2397	4 740	0,3124	4 522	0,3607	1 592	0,3675
CreditHist	6 062	0,1966	4 740	0,2662	4 522	0,2959	1 592	0,2971
IntRate	1 301	0,2022	1 415	0,1675	1 587	0,1109	575	0,0974
FeesandComiss	1 301	0,3805	1 415	0,3095	1 587	0,2130	575	0,1635
LoanSize	1 301	0,1852	1 415	0,2332	1 587	0,2565	575	0,3235
LoanMat	1 301	0,0799	1 415	0,0926	1 587	0,1059	575	0,1600
Collat	1 301	0,2483	1 415	0,2283	1 587	0,1632	575	0,1357
OtherCond	1 301	0,2683	1 415	0,2565	1 587	0,1783	575	0,1965

Appendix 6: Correlation matrix between Capital Structure and Access to External Finance variables

Appendix 6 reports the correlation between the variables that represent the changes in capital structure of SMEs in Europe (*DebtoAssets* and *BankLoan)* and the ones that try to explain the impact of access to external finance on them. Hence both variables that are a proxy for the demand side (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist*) and supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat* and *OtherCond*) are presented. Control variables, which are not reported in Table III are also include. Namely, *Country, Firm Industry, Ownership, Maturity, Size* and a set of variables considered influential on capital structure of firms by literature (*Profit, FixedInvest, IWC*). The following sign applies for the statistical significance of coefficients: * p<0,05.

Variables	Capital Structure Variables	
	DebtoAssets	BankLoan
DebtoAssets	1,0000	0,1527*
BankLoan	0,1527*	1,0000
GenEconOutlook	(0,0001)	0,0691*
AccessPubFin	0,0072	0,0244*
OwnCapital	(0,0430)*	0,0387*
CreditHist	0,0021	0,0671*
IntRate	0,0869*	(0,0004)
FeesandComiss	0,1335*	(0,0496)*
LoanSize	0,0740*	0,1039*
LoanMat	0,0481*	0,0809*
Collat	0,1237*	(0,0350)*
OtherCond	0,1149*	(0,0432)*
Germany	(0,0231)*	0,0202
France	0,0164*	0,0039
Italy	0,0527*	0,0417*
Portugal	(0,0067)	(0,0234)*
UnitedKingdom	(0,0013)	(0,0245)*
Industry	0,0167*	0,0428*
Construction	0,0128	(0,0026)
Trade	(0,0066)	(0,0165)
Services	(0,0282)*	(0,0799)*
OtherActivities	0,0183*	0,0847*
PubShareholders	0,0062	0,0227*
Entrepreneurs	(0,0048)	0,0188
OtherFirms	0,0062	0,0237*
VC	0,0196*	0,0025
OnlyOwner	(0,0102)	(0,0561)*

OtherOwnerTypes	0,0090	0,0223*
Old	(0,0242)*	0,0608*
Middle	0,0197*	(0,0410)*
Young	0,0114	(0,0373)*
Startup	0,0039	(0,0222)*
OtherAge	(0,0002)	0,0086
Micro	(0,0208)*	(0,1617)*
Small	(0,0106)	(0,0069)
Medium	0,0213*	0,1150*
Large	0,0183*	0,0847*
Profit	(0,0542)*	0,0364*
FixedInvest	0,0774*	0,1296*
IWC	0,0686*	0,0716*

Appendix 7: Regressions used to determine the access to external finance effect on SMEs capital structure: logit model and average marginal effects

Appendix 7. 1: Direct effect of Access to External Finance variables on Capital Structure: logit and average marginal effects

Appendix 7.1 reports the logit regressions (1) and (2) from regressing *DebtoAssets* and *BankLoan* on all the access to external finance variables. The logit regressions (3) and (4) are also reported from regressing *DebtoAssets* on variables that are a proxy for demand side (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist)* and from regressing *BankLoan* on variables that are a proxy for the supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat* and *OtherCond*), respectively. The correspondent average marginal effects are also presented in order to allow a correct interpretation of the variables' coefficients. Control variables are not included since the present table aims to report only the direct effect of the variables of interest. The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**Logit (1) and (2)**		**Average Marginal Effects**		**Logit (3) and (4)**		**Average Marginal Effects**	
	DebtoAssets (1)	BankLoan (2)	DebtoAssets	BankLoan	DebtoAssets (3)	BankLoan (4)	DebtoAssets	BankLoan
GenEconOutlook	(0,0945)	0,1086	(0,0173)	0,0236	0,0277		0,0034	
AccessPubFin	0,0915	0,0274	0,0168	0,0059	0,1044		0,0129	
OwnCapital	(0,2614)***	0,2552***	(0,0480)***	0,0555***	(0,3384)***		(0,0419)***	
CreditHist	(0,1532)**	0,0445	(0,0281)**	0,0097	0,1323**		0,0164**	
IntRate	0,1494	0,1624	0,0274	0,0353		0,1411		0,0308
FeesandComiss	0,4294***	(0,2008)**	0,0788***	(0,0436)**		(0,2144)***		(0,0468)***
LoanSize	0,4145***	0,3961***	0,0761***	0,0861***		0,4490***		0,0980***
LoanMat	0,1661	0,3878***	0,0305	0,0843***		0,4304***		0,0940***
Collat	0,3246***	(0,0511)	0,0596***	(0,0111)		(0,0723)		(0,0158)
OtherCond	0,2131**	(0,1532)	0,0391**	(0,0333)		(0,1568)		(0,0342)
Constant	(1,3293)***	0,5201***	-	-	(1,7235)***	0,6396***	-	-
Observations	4 878	3 893			16916	3893	16916	3893
Pseudo R2	0,0322	0,0178	-	-	0,0029	0,0144	-	-
Wald chi2	177,59***	79,87***	-	-	40,65	66,36	-	-

Appendix 8: Regressions used to determine the access to external finance effect on SMEs capital structure: probit model and average marginal effects

Appendix 8. 1: Regressions results with control variables: probit and average marginal effects

Appendix 8.1 presents the probit regressions (3) and (4) from regressing *DebtoAssets* on variables that are a proxy for demand side (*GenEconOutlook, AccessPubFin, OwnCapital* and *CreditHist)* and from regressing *BankLoan* on variables that are a proxy for the supply side (*IntRate, FeesandComiss, LoanSize, LoanMat, Collat* and *OtherCond*), respectively. The average marginal effects are also presented, allowing a correct interpretation of the variables' coefficients. Control variables are included, i.e. *Country, Firm Industry, Ownership, Maturity, Size* and a set of variables considered influential on capital structure of firms by literature (*Profit, FixedInvest, IWC*). The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**Probit (3) and (4)**		**Average Marginal Effects**	
	DebtoAssets (3)	BankLoan (4)	DebtoAssets	BankLoan
GenEconOutlook	(0,0008)		(0,0002)	
AccessPubFin	0,0142		0,0032	
OwnCapital	(0,1852)***		(0,0411)***	
CreditHist	0,0615**		0,0136**	
IntRate		0,1295**		0,0453**
FeesandComiss		(0,0881)*		(0,0308)*
LoanSize		0,2164***		0,0756***
LoanMat		0,2551***		0,0891***
Collat		(0,0314)		(0,0110)
OtherCond		(0,0867)		(0,0303)
Germany	(0,0699)	0,1328	(0,0155)	0,0464
France	0,0909**	0,0705	0,0202**	0,0246
Italy	0,2834***	0,1077	0,0629***	0,0376
Portugal	(0,0684)	(0,2333)**	(0,0152)	(0,0815)**

UnitedKingdom	0,0126	0,0226	0,0028	0,0079
Industry	0,0338	(0,0112)	0,0075	(0,0039)
Construction	0,1276***	0,0093	0,0283***	0,0032
Trade	0,0246	0,0118	0,0055	0,0041
OtherActivities	0,1594***	0,4149***	0,0354***	0,1449***
PubShareholders	0,0633	0,0813	0,0140	0,0284
OtherFirms	0,0163	(0,0682)	0,0036	(0,0238)
VC	0,3647***	0,0446	0,0809***	0,0156
OnlyOwner	0,0182	0,0120	0,0040	0,0042
OtherOwnTypes	0,0252	(0,1099)	0,0056	(0,0384)
Middle	0,1249***	(0,1032)	0,0277***	(0,0361)
Young	0,1310***	(0,1214)	0,0291***	(0,0424)
Startup	0,0685	(0,0197)	0,0152	(0,0069)
OtherAge	0,1161	(0,7204)	0,0258	(0,2516)
Small	0,0230	0,1299**	0,0051	0,0454**
Medium	0,1025***	0,3310***	0,0227***	0,1156***
Profit	(0,2526)***	(0,0001)	(0,0560)***	(0,0001)
FixedInvest	0,2583***	0,2831***	0,0573***	0,0989***
IWC	0,2748***	(0,0192)	0,0609***	(0,0067)
Constant	(1,2366)***	0,1041	-	-
Observations	16 916	3893	16 916	3893
Pseudo R2	0,0282	0,0371	-	-
Wald chi2	382,39***	178,28***	-	-

Appendix 8. 2: Regressions results based on success on external finance applications: average marginal effects

Appendix 8.2 presents the probit regression average marginal effects resulting from a sample split based on *UnconstDebt* variable. If SMEs succeed in their application to external sources they are classified as unconstrained SMEs, whereas if the failed in their application they are considered constrained SMEs. Both regressions, *DebtoAssets* and *BankLoan*, on access to external finance variables are presented as well as their correspondent base line regressions, (3) and (4), respectively. This table also reports the control variables that are not reported in Table VI. For the sake of simplicity, this table does not report the probit regression coefficients (that only indicate the direction of the average effect), the constant, the pseudo r-squared and the significance of the whole regression (Wald chi-squared). The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**DebtoAssets**			**BankLoan**		
	Unconstrained SMEs	Constrained SMEs	(3)	Unconstrained SMEs	Constrained SMEs	(4)
GenEconOutlook	(0,0169)	(0,0011)	(0,0002)			
AccessPubFin	(0,0044)	0,0027	0,0032			
OwnCapital	(0,0580)***	(0,0286)***	(0,0411)***			
CreditHist	0,0045	0,0007	0,0136**			
IntRate				0,0577**	0,0373	0,0453**
FeesandComiss				(0,0343)*	0,0258	(0,0308)*
LoanSize				0,0400**	0,1164***	0,0756***
LoanMat				0,0646**	0,1172**	0,0891***
Collat				(0,0203)	0,0802**	(0,0110)
OtherCond				(0,0030)	(0,0013)	(0,0303)
Germany	(0,0502)**	0,0063	(0,0155)	0,0386	0,0781	0,0464
France	(0,0029)	0,0204*	0,0202**	0,0317	(0,0974)*	0,0246
Italy	0,0262	0,0681***	0,0629***	0,0445	0,0434	0,0376
Portugal	(0,0327)	(0,0127)	(0,0152)	(0,0764)*	(0,0895)	(0,0815)**
UnitedKingdom	(0,0396)*	0,0210*	0,0028	(0,0336)	0,1301	0,0079

Industry	(0,0038)	0,0054	0,0075	(0,0123)	0,0331	(0,0039)
Construction	0,0143	0,0283***	0,0283***	0,0135	0,0094	0,0032
Trade	(0,0116)	0,0038	0,0055	0,0113	(0,0169)	0,0041
OtherActivities	0,0347	(0,0080)	0,0354***	0,1287***	0,0907	0,1449***
PubShareholders	0,0652**	0,0058	0,0140	0,0584	(0,0645)	0,0284
OtherFirms	0,0331**	(0,0108)	0,0036	(0,0315)	(0,0102)	(0,0238)
VC	0,1986***	(0,0021)	0,0809***	(0,0258)	0,1102	0,0156
OnlyOwner	0,0207	0,0010	0,0040	(0,0021)	0,0393	0,0042
OtherOwnTypes	0,0343	0,0039	0,0056	(0,0718)**	0,1034	(0,0384)
Middle	0,0323*	0,0253***	0,0277***	(0,0180)	(0,0594)	(0,0361)
Young	0,0268	0,0325***	0,0291***	0,0370	(0,1113)	(0,0424)
Startup	0,0340	0,0039	0,0152	0,0704	(0,0636)	(0,0069)
OtherAge	(0,0009)	0,0360	0,0258	(0,1930)	-	(0,2516)
Small	(0,0017)	(0,0037)	0,0051	0,0424*	0,0183	0,0454**
Medium	0,0078	0,0077	0,0227***	0,0924***	0,1210***	0,1156***
Profit	(0,0686)***	(0,0470)***	(0,0560)***	0,0074	(0,0191)	(0,0001)
FixedInvest	0,0791***	0,0342***	0,0573***	0,1042***	0,0508	0,0989***
IWC	0,0890***	0,0365***	0,0609***	(0,0191)	0,0161	(0,0067)
Observations	5279	11637	16916	2953	939	3893

Appendix 9: Regressions used to test the robustness of the results

Appendix 9. 1: Regression results without largest firms: probit and average marginal effects

Appendix 10.1 presents the probit regression results from a sample split based on *NoLarge* variable. If the categorical variable size assumes "Micro", "Small" or "Medium", *NoLarge* assumes value "1" SMEs, and SMEs are considered in the regression, whereas if size assumes "Large", SMEs are disregarded from the regression. Both regressions, *DebtoAssets* and *BankLoan*, on access to external finance variables are presented as well as their correspondent base line regressions, (3) and (4), respectively. The average marginal effects are also presented, allowing a correct interpretation of the variables' coefficients. This table also reports the control variables that are not reported in Table VII. The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**Probit**				**Average Marginal Effects**			
	DebtoAssets	(3)	BankLoan	(4)	DebtoAssets	(3)	BankLoan	(4)
GenEconOutlook	(0,0241)	(0,0008)			(0,0053)	(0,0002)		
AccessPubFin	0,0090	0,0142			0,0020	0,0032		
OwnCapital	(0,1991)***	(0,1852)***			(0,0438)***	(0,0411)***		
CreditHist	0,0740**	0,0615**			0,0163**	0,0136**		
IntRate			0,1382**	0,1295**			0,0490**	0,0453**
FeesandComiss			(0,0889)	(-0,0881)*			(0,0315)	(0,0308)*
LoanSize			0,2201***	0,2164***			0,0780***	0,0756***
LoanMat			0,2911***	0,2551***			0,1032***	0,0891***
Collat			(0,0421)	(0,0314)			(0,0149)	(0,0110)
OtherCond			(0,0946)	(0,0867)			(0,0335)	(0,0303)
Germany	(0,0711)	(0,0699)	0,1424	0,1328	(0,0156)	(0,0155)	0,0505	0,0464
France	0,0892**	0,0909**	0,0846	0,0705	0,0196**	0,0202**	0,0300	0,0246
Italy	0,2761***	0,2834***	0,1003	0,1077	0,0607***	0,0629***	0,0356	0,0376
Portugal	(0,0982)	(0,0684)	(0,2918)**	(0,2333)**	(0,0216)	(0,0152)	(0,1035)**	(0,0815)**

UnitedKingdom	0,0294	0,0126	0,0218	0,0226	0,0065	0,0028	0,0077	0,0079
Industry	0,0375	0,0338	(0,0127)	(0,0112)	0,0082	0,0075	(0,0045)	(0,0039)
Construction	0,1296***	0,1276***	0,0105	0,0093	0,0285***	0,0283***	0,0037	0,0032
Trade	0,0274	0,0246	0,0081	0,0118	0,0060	0,0055	0,0029	0,0041
OtherActivities	-	0,1594***	-	0,4149***	-	0,0354***	-	0,1449***
PubShareholders	0,0668	0,0633	0,1277	0,0813	0,0147	0,0140	0,0453	0,0284
OtherFirms	0,0300	0,0163	(0,0488)	(0,0682)	0,0066	0,0036	(0,0173)	(0,0238)
VC	0,3698***	0,3647***	0,0468	0,0446	0,0813***	0,0809***	0,0166	0,0156
OnlyOwner	0,0231	0,0182	0,0136	0,0120	0,0051	0,0040	0,0048	0,0042
OtherOwnTypes	0,0731	0,0252	(0,1193)	(0,1099)	0,0161	0,0056	(0,0423)	(0,0384)
Middle	0,1066***	0,1249***	(0,0786)	(0,1032)	0,0234***	0,0277***	(0,0279)	(0,0361)
Young	0,1371***	0,1310***	(0,1425)	(0,1214)	0,0301***	0,0291***	(0,0505)	(0,0424)
Startup	0,0888	0,0685	(0,0750)	(0,0197)	0,0195	0,0152	(0,0266)	(0,0069)
OtherAge	0,1856	0,1161	(0,7231)	(0,7204)	0,0408	0,0258	(0,2563)	(0,2516)
Small	0,0223	0,0230	0,1241**	0,1299**	0,0049	0,0051	0,0440**	0,0454**
Medium	0,0999***	0,1025***	0,3203***	0,3310***	0,0219***	0,0227***	0,1135***	0,1156***
Profit	(0,2554)***	(0,2526)***	0,0108	(0,0001)	(0,0561)***	(0,0560)***	0,0038	(0,0001)
FixedInvest	0,2613***	0,2583***	0,2937***	0,2831***	0,0574***	0,0573***	0,1041***	0,0989***
IWC	0,2580***	0,2748***	(0,0001)	(0,0192)	0,0567***	0,0609***	(0,0000)	(0,0067)
Constant	(1,2308)***	(1,2366)***	0,0934	0,1041	-	-	-	-
Observations	15 324	16 916	3 405	3 893	15 324	16 916	3 405	3893
Pseudo R2	0,0277	0,0282	0,0368	0,0371	-	-	-	-
Wald chi2	337,06***	382,39***	156,73***	178,28***	-	-	-	-

Appendix 9. 2: Regression results based on access to finance as a pressing problem: average marginal effects

Appendix 9.2 presents the probit regression average marginal effects resulting from a sample split based on *AccesstoFin* variable. If firms select "Access to Finance" as their most pressing problem between 1 and 5 they are classified as Non-Pressed SMEs, whereas if they selected between 6 and 10 they are considered Pressed SMEs. Both regressions, *DebtoAssets* and *BankLoan*, on access to external finance variables are presented as well as their correspondent base line regressions, (3) and (4), respectively. This table also reports the control variables that are not reported in Table VIII. For the sake of simplicity, this table does not report the probit regression coefficients (that only indicate the direction of the average effect), the constant, the pseudo r-squared and the significance of the whole regression (Wald chi-squared). The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**DebtoAssets**			**BankLoan**		
	Non-pressed SMEs	Pressed SMEs	(3)	Non-pressed SMEs	Pressed SMEs	(4)
GenEconOutlook	0,0082	(0,0179)	(0,0002)			
AccessPubFin	(0,0058)	0,0075	0,0032			
OwnCapital	(0,0251)***	(0,0377)***	(0,0411)***			
CreditHist	0,0216***	(0,0221)	0,0136**			
IntRate				0,0452	0,0454*	0,0453**
FeesandComiss				(0,0365)	(0,0174)	(0,0308)*
LoanSize				0,0369	0,1102***	0,0756***
LoanMat				0,0573	0,1144***	0,0891***
Collat				0,0097	(0,0162)	(0,0110)
OtherCond				(0,0197)	(0,0294)	(0,0303)
Germany	0,0026	(0,0386)*	(0,0155)	0,0541	0,0439	0,0464
France	0,0240***	0,0214	0,0202**	0,0797***	(0,0319)	0,0246
Italy	0,0503***	0,0591***	0,0629***	0,0610	0,0256	0,0376
Portugal	(0,0035)	(0,0530)	(0,0152)	(0,0358)	(0,1131)**	(0,0815)**
UnitedKingdom	0,0087	0,0146	0,0028	(0,0016)	0,0267	0,0079
Industry	0,0005	0,0066	0,0075	(0,0009)	(0,0094)	(0,0039)
Construction	0,0139	0,0354*	0,0283***	0,0273	(0,0186)	0,0032

Trade	0,0003	0,0069	0,0055	0,0269	(0,0084)	0,0041
OtherActivities	0,0299***	0,0469*	0,0354***	0,1460***	0,1303***	0,1449***
PubShareholders	0,0267**	0,0062	0,0140	0,0775	(0,0227)	0,0284
OtherFirms	0,0022	0,0415**	0,0036	(0,0117)	(0,0295)	(0,0238)
VC	0,0158	0,1514***	0,0809***	0,0752	(0,0095)	0,0156
OnlyOwner	(0,0020)	0,0191	0,0040	0,0389	(0,0227)	0,0042
OtherOwnTypes	0,0082	0,0214	0,0056	(0,0683)	(0,0009)	(0,0384)
Middle	0,0215***	0,0232	0,0277***	(0,0665)**	(0,0167)	(0,0361)
Young	0,0031	0,0505**	0,0291***	(0,0530)	(0,0260)	(0,0424)
Startup	(0,0019)	0,0088	0,0152	(0,0702)	0,0508	(0,0069)
OtherAge	-	0,1162	0,0258	(0,1824)	(0,2953)	(0,2516)
Small	(0,0017)	0,0086	0,0051	0,0156	0,0609**	0,0454**
Medium	0,0203***	0,0322**	0,0227***	0,0900***	0,1319***	0,1156***
Profit	(0,0300)***	(0,0963)***	(0,0560)***	(0,0207)	0,0178	(0,0001)
FixedInvest	0,0509***	0,0606***	0,0573***	0,1278***	0,0764***	0,0989***
IWC	0,0456***	0,0833***	0,0609***	(0,0089)	(0,0046)	(0,0067)
Observations	10 895	6 009	16 916	1 711	2 182	3 893

Appendix 9. 3: Regression results for European countries mostly affected by the crisis vs other European countries: average marginal effects

Appendix 9.3 reports the probit regression average marginal effects resulting from a sample split based on *CrisisCountries* variable. If the categorical variable country assumes "Greece", "Italy", "Ireland", "Portugal" or "Spain", *CrisisCountries* assumes value "1" and SMEs are included in Crisis countries sub-sample. If country does not correspond to the specific countries, SMEs are included in Non-crisis countries sub-sample. Both regressions, *DebtoAssets* and *BankLoan*, on access to external finance variables are presented as well as their correspondent base line regressions, (3) and (4), respectively. This table also reports the control variables that are not reported in Table IX. For the sake of simplicity, this table does not report the probit regression coefficients (that only indicate the direction of the average effect), the constant, the pseudo r-squared and the significance of the whole regression (Wald chi-squared). The following sign applies for the statistical significance of coefficients: *** p<0.01, ** p<0.05, * p<0.1.

Variables	**DebtoAssets**			**BankLoan**		
	Crisis countries	Non-crisis countries	(3)	Crisis countries	Non-crisis countries	(4)
GenEconOutlook	(0,0204)	0,0038	(0,0002)			
AccessPubFin	(0,0355)	0,0197	0,0032			
OwnCapital	(0,0417)**	(0,0404)***	(0,0411)***			
CreditHist	(0,0054)	0,0184***	0,0136**			
IntRate				(0,0279)	0,0810***	0,0453**
FeesandComiss				(0,0121)	(0,0336)	(0,0308)*
LoanSize				0,1056***	0,0614***	0,0756***
LoanMat				0,0841*	0,0913***	0,0891***
Collat				(0,0053)	(0,0140)	(0,0110)
OtherCond				(0,0296)	(0,0271)	(0,0303)
Germany	-	(0,0077)	(0,0155)	-	0,0499*	0,0464
France	-	0,0290***	0,0202**	-	0,0180	0,0246
Italy	0,0357***	-	0,0629***	0,0521*	-	0,0376
Portugal	(0,0444)**	-	(0,0152)	(0,0661)	-	(0,0815)**
UnitedKingdom	-	0,0080	0,0028	-	0,0047	0,0079
Industry	(0,0027)	0,0099	0,0075	0,0345	(0,0178)	(0,0039)

Construction	0,0257	0,0288***	0,0283***	(0,0952)*	0,0336	0,0032
Trade	0,0158	(0,0016)	0,0055	(0,0015)	0,0111	0,0041
OtherActivities	0,0689**	0,0315***	0,0354***	0,1597***	0,1340***	0,1449***
PubShareholders	0,0762*	0,0098	0,0140	0,0737	0,0202	0,0284
OtherFirms	0,0059	0,0071	0,0036	(0,0312)	(0,0311)	(0,0238)
VC	0,0188	0,0958***	0,0809***	0,1373	(0,0578)	0,0156
OnlyOwner	0,0045	0,0092	0,0040	0,0562*	(0,0194)	0,0042
OtherOwnTypes	0,0308	0,0051	0,0056	0,1113*	(0,0977)**	(0,0384)
Middle	0,0165	0,0323***	0,0277***	(0,0585)	(0,0284)	(0,0361)
Young	0,0341	0,0264**	0,0291***	(0,1556)**	(0,0137)	(0,0424)
Startup	0,0547	0,0024	0,0152	0,0231	(0,0254)	(0,0069)
OtherAge	-	0,0375	0,0258	-	(0,2600)	(0,2516)
Small	0,0365***	(0,0007)	0,0051	0,0338	0,0365	0,0454**
Medium	0,0395**	0,0232***	0,0227***	0,15067***	0,0932***	0,1156***
Profit	(0,0967)***	(0,0445)***	(0,0560)***	0,0198	(0,0079)	(0,0001)
FixedInvest	0,0478***	0,0599***	0,0573***	0,0574*	0,1123***	0,0989***
IWC	0,0736***	0,0584***	0,0609***	0,0223	(0,0203)	(0,0067)
Observations	4 011	12 903	16 916	1 203	2 690	3 893